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1989
Third Edition
Complete Frequency Update

AIRCRAFT FREQUENCY DIRECTORY HF/VHF/UHF for United States/Canada/Mexico

AIR SHOWS
Thunderbirds and Blue Angels
Frequencies and Information

AIR TRAFFIC CONTROL
Civil and Military Facilities
Tower/Center/Approach Control

MILITARY Areas and Frequencies for
Refueling Areas
Special Purpose
Operating Areas
Fleet Area Control

EMERGENCIES
Tips for Catching the Action

WAR STORIES
Moments of Humor and Horror

U.S. FOREST SERVICE
Fire Channels

ARINC
HF World Wide
VHF Continental U.S.

UNICOM & MULTICOM
Frequencies and Useage

TRAFFIC WATCH
Frequencies

PARACHUTE JUMPING
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Compiled and Edited by Retired Pilot/Air Traffic Controller

INTRODUCTION

Our objective in compiling this directory has been to provide you with a record of radio frequencies used in aviation. Most relate to air traffic control. Military HF/VHF/UHF channels have been included for refueling, low level routes, combat training and similar operations. ARINC channels are listed for the U.S. and HF channels for oceanic routes. These listings furnish you with an accurate, comprehensive source of information.

Frequency information has been derived from Government sources including Airport/Facilitity Directories, Low Altitude Enroute Charts, IFR Supplement and Sector Charts from ARTC Centers.

Facilities listed in this directory were selected using the following criteria:

1. Airports with a control tower. Note that military as well as civil airports are listed and include both VHF and UHF radio channels.

2. Air Route Traffic Control Centers within the 50 states.

3. Canadian and Mexican ATC facilities with complete listings are included in this directory.

4. ARINC frequencies made available to us by ARINC and members of the Radio Communications Monitoring Association.

5. Military Operations with flying or air traffic control involvement.

Most radio scanners used for aircraft monitoring receive the VHF band and an increasing number receive the military band from 225Mhz through 400Mhz. Although few scanners operate in the HF band many listeners own HF equipment. For this reason we have listed HF frequencies used by ARINC, the military services and others for long range radio communications.

You will find a few duplicate frequencies. For example Greater Cincinnati airport is located in Kentucky across the Ohio River. For this reason Greater Cincinnati is listed under Ohio as well as Kentucky. Similarly, some St Louis airports are listed in Missouri and Illinois.

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ACKNOWLEDGEMENTS

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GETTING THE MOST OUT OF YOUR AIRCRAFT MONITORING

While most of us monitor at home, visiting the airport can be a rewarding experience. Monitoring the aircraft while the control tower directs them provides us with a better understanding of the airport and ATC system.

A detailed diagram of the airport will enhance your listening enjoyment. These are often available from fuel distributors or the airport manager's office. These diagrams often provide a complete airport layout, including runways, taxiways, terminal building, control tower and other prominent objects. You will find runway layouts easy to understand. Some airports have a maze of taxi routes. Yet with your scanner and airport chart, you will become well acquainted with even the most complex airport design.

Unless you live next to the airport, joining the spectators is sometimes inconvenient. Fortunately you will find the airport diagram as valuable to your monitoring at home as at the airport. Similar diagrams, charts and maps are keys to enjoyable monitoring at home. Here is a brief list.

Low Altitude Enroute Chart. $2.50 each.
Twenty seven are needed to cover the entire U.S., although one or two are all you will need. These charts show airways, navigation aids, airports, frequencies and an assortment of other data was well. These charts are useful in monitoring Approach/Departure control and ARTC Center operations.

Instrument Approach Book. $3.00 each.
Fifteen books cover the U.S. You will only need one. They display routes and navigation aids used for instrument approachs. Some airports have but one approach, others as many as ten. An small but detailed diagram of runways and taxiways is pictured with every approach. The approach book is suitable for all aspects of ATC monitoring.

Airport/Facility Directory. $3.00 each.
Seven books cover the U.S. usually only one is needed. These directories tabulate information for both large and small airports with data related to elevation, runways, frequencies, weather sources, aids to navigation and other services. These too are suitable for all types of ATC monitoring.

These publications may be ordered from:

NOAA,
Distribution Branch
N/CG3313
Riverdale, Md 20737

Telephone 301 436-6900
301 436-6993

RADIO FREQUENCY STRUCTURE IN THE AIRCRAFT BAND

Frequencies in the 118.00 through 135.97Mhz band are assigned for aircraft communications. Until recently these were exclusively voice.

Frequencies from 108.00Mhz through 117.975Mhz are used for air navigation aids. These include both ILS and VOR. ILS is the acronym for instrument landing system and VOR for visual omni range. ILS begins at the low end and extends to 112Mhz while VORs operate from 112Mhz thru 118Mhz. Some low power short range terminal VOR facilities may also be found between in this range. ILS is used to lead aircraft to the runway, while VOR is used for both navigation and instrument approaches. Voice transmissions on the VOR include weather broadcasts and a few ATIS channels.

The aircraft band follows this general frequency pattern.

118.00 - 121.40	ATC - tower, approach, departure
121.60 - 121.95	Ground control
121.95	Flight test
121.97 - 122.67	Flight Service Station - and EFAS
122.70 - 123.15	UNICOM and CTAF
123.05	UNICOM Heliports
123.15 - 123.55	Acft mfrs, ATC and Flight Test
123.30 - 123.50	Flight training, gliders and balloons
123.60	FSS for airport advisory service
123.62 - 128.80	ATC - tower and center
128.85 - 132.22	Aeronautical radio services
132.22 - 135.97	ATC - tower and Center

Frequencies shown below have been suggested as special use channels. Some are known to be while others may not.

119.85	US NAVY
119.97	USFS helicopters
120.42	Law enforcement surveillance aircraft
121.50	International emergency channel
121.95	Flight test, balloons, gliders US Geological Survey aircraft
122.00	Enroute weather service
122.30 - 122.60	FSS - with some at remote locations
122.70 - 123.00	UNICOM
122.75	UNICOM and traffic watch aircraft
122.95	UNICOM - At tower or FSS airports
123.10	Search and rescue (CAP) and air show
123.45	MULTICOM channel - aircarrier
123.60	FSS airport advisory service
126.20	Military towers
135.85	FAA flight check
135.95	FAA flight check

HISTORY OF AIR TRAFFIC CONTROL

ENROUTE - Air Route Traffic Control Centers

In the late 1930's airline company offices in Chicago, Cleveland and Newark originated a system of enroute air traffic control. Their service provided separation to aircraft flying in clouds on instruments. Although primitive by todays standards, these Centers were successful in avoiding potential midair collisions. Moreover these procedures would be followed for many years to come. Then within a few years this air traffic control network was transferred to the Civil Aviation Authority where it was expanded and evolved into its present configuration.

Twenty air route traffic control centers within the continental U. S. as well as four others operated by the FAA in Honolulu, Anchorage, Guam and San Juan manage air traffic over the 50 states and large portions of the Atlantic and Pacific oceans. Although centers perform approach control functions at some locations, their primary role is to provide separation during the enroute phase of the flight. Centers administer control over huge blocks of airspace that may include several states or more.

It was early 1950 before radar became part of the civil ATC system. The first of these were control towers in New York, Chicago and Los Angeles. Today nearly all FAA control towers are equipped with some form of radar. In ARTC Centers radar did not appear until the late 1950's where it was installed in the Washington Center for testing and evaluation. It was 1960 before installation began in the remaining Centers. Although these high-tech advancements make the task easier, today's traffic could not be controlled without them.

TERMINALS - Tower, Approach and Departure Control

The first control tower was commissioned at Cleveland Hopkins airport in the middle 1930s. It perched atop the terminal building and was similar in appearance to a light house. It remained in this configuration until 1960 when a new terminal and control tower were commissioned.

Prior to WWII control towers were operated by city governments. During the war most were transferred to the U. S. Government and continued operating as a component of the CAA. During the controller strike of 1981, all low activity control towers were closed. Of these towers that have reopened since the strike, most are operated by private contractors funded by city governments.

Control towers direct traffic in the air and on the ground by employing visual separation. Usually but not always a radar display is at hand to help with the task. Many control towers also have an approach/departure control function. In some major metropolitan areas the approach control function is being consolidated into a single approach control facility for the entire area.

A typical example is "Bay Approach Control" where a radar facility, in Oakland, controls traffic for airports including San Francisco, Oakland, Hayward, San Jose, Moffett NAS, Alameda NAS, Palo Alto, San Carlos and

others. Similar facilities may be found throughout the country.

RAPCONs, though smaller, are very similar to the radar facility described as Bay Approach Control. They are located on and serve a military base as well as adjacent civil airports. RAPCONs may be staffed with military or FAA controllers or both. In either case the training and certification is supervised by the FAA.

FLIGHT SERVICE STATION

FSS employees of the 1930s, served in the Department of Commerce, Light House Bureau and carried the title Airway Keeper. It was an appropriate title for one of their duties was to ensure airway beacons used for night flying remained lighted to guide pilots along their route. The last of these beacon lights served routes in Nevada until it was extinguished in 1967. By then the role of the FSS had changed dramatically.

As duties changed so did their title - to Aircraft Communicator. These individuals now became certified weather observers providing a variety of services for general aviation pilots. They transmitted flight plans by radio telegraph or telephone to stations along the route. When the flight plans was activated communicators also tracked progress of the aircraft to its destination. If unreported or overdue, a communications search was conducted along the route. When this failed to reveal the whereabouts of the aircraft, a ground search was conducted at airports along the route. Pilots sometimes landed short of their destination and forgot to close their flight plan. If these efforts failed to reveal the aircraft, an air search was ordered.

With the advent of direct pilot/controller radio communications the role of the aircraft communicator gradually evolved to weather briefer. Today FSS specialists continue to record weather observations, make broadcasts, process flight plans and render flight following. However, their major commitment has now become that of pilot briefer. Today there were several hundred FSS stations scattered across the U.S. Over the next few years these will be combined into 60 facilities. And with consolidation comes modernization, new equipment, additional computer terminals, radar and satellite weather images. The modern FSS should improve access to the briefer, minimize flight plan delays, and provide improved briefings.

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CONTROLLER EQUIPMENT

The air traffic controller has four tools for separating air traffic. These are RADIO, RADAR, a COMPUTER and TELEPHONE

RADIO

Since radio is the topic in which we are most interested, we will discuss it first. With some exceptions, direct radio contact between controller and pilot provides the communications link for air traffic control service. For oceanic and sparsely populated areas such as northern Canada, most ATC communications are relayed through ARINC and similar agencies.

Communications of interest to us are found in the VHF band from 118.00

through 135.97Mhz and UHF segment from 225 to 400Mhz. With few exceptions military aircraft use the UHF band while civil aircraft use VHF. The Blue Angels and Thunderbirds are equipped for both VHF and UHF. Similarly, MAC aircraft communicate on HF as well as VHF and UHF.

Most air traffic agencies are equipped to transmit and receive on VHF as well as UHF, including FAA and their military counterparts. Each must have the capability of controlling both civil and military traffic, therefore you will find a VHF frequency paired with an UHF. A typical listing might be 126.72/307.2. Receiving a call on 126.72 the controller will respond by keying the same channel, 126.72. But in doing so will transmit on 307.2 as well. The same holds true in receiving. No provision is made for listening to VHF and muting UHF, or visa versa. Therefore, it is not only possible but common for a controller to hear two aircraft call him at the same time, one on VHF the other on UHF. Neither pilot can hear the other, yet the controller hears both!

Although more of us are listening to the UHF band segment, most aircraft monitoring is done in the VHF portion. On many occasions, you may have heard the controller talking to an aircraft but have not heard the pilot response. This may be the result of paired frequencies. You hear the controller on 126.75 as he is talking with the pilot on 307.2 but do not hear the response from the military pilot on 307.2.

RADAR

Two types of radar are used in air traffic control. One is a long range (LRR) system for use in ARTC Centers. The other is a short range system known as airport surveillance radar (ASR) installed in control towers and approach control facilities.

Radar scopes in ARTC Centers picture a mosaic display processed though a computer from data received from several radar systems. This provides several advantages. If the sweep of one system misses the aircraft, as it sometimes does, it may be detected and displayed by another. Secondly, the LRR antenna rotates slowly and two or more LRRs provide updated information every few seconds where a single system requires ten seconds between sweeps to display aircraft positions.

The LRR has a range of about 200 nautical miles, while the ASR is limited to 60. The radar systems differ in other ways as well. The LRR sweeps the horizon at 6 rpms while the ASR rotates at 12 to 15 rpms. Furthermore, LRR systems radiate 5 megawatts of power, while ASR operates on about one tenth of that energy. These are the major differences in radar systems although there are others.

At one time the primary radar target, (energy reflected from the airplane) was all the controller could see. Under good conditions this provided an excellent tool for the controller. But all too often rain, snow, cars, trucks, trains and mountains made tracking difficult or impossible. Then transponders came of age and tracking through precipitation, ground clutter or anomalous propagation (AP) became easy. But secondary radar required special equipment in the aircraft and for many years very were transponder equipped.

COMPUTERS

The first computer for air traffic control was the IBM Cardatype. Some of these may still be used for printing US Government checks. The Cardatype printed flight progress strips and computed times based on ground speed. Yet it was not the computations that were of greatest value, but printed strips which were now easy to read. Previously data was hand written and was often difficult to decipher.

The first large computer installation came to Cleveland Center in the early 1960s. It was the IBM 9020 and at that time considered to have a huge memory capacity. Yet before long the memory was too small. Modifications and updated versions improved capacity, but the 9020 model has since been replaced in all ARTC Centers by a newer, larger, faster version. And as you would expect, a faster, more powerful system is on the horizon. One day before long, the computers will control the air traffic for us.

As you have seen, improvements in radar and the simultaneous advent of computers provided information undreamed of but a few years ago. For today the computer calculates aircraft tracks and predicts potential conflicts. Similarly, should the aircraft descend to a dangerously low altitude, the computer warns the controller who instantly relays the alert to the pilot.

The computer injects another element into the ATC function. For today the computer divulges controller errors. Years ago errors frequently went unreported, particularly if the controller was the only one aware of the incident. NOT TODAY. When the computer recognizes the error, it details facts including identification of the aircraft involved, time and location. At the same time it alerts the supervisor when a printout appears at the supervisor's console. Time was when controller errors went undetected.

TELEPHONE

Few people outside the FAA (and Bell Telephone) are aware of the extensive telephone network leased for use in air traffic control.

Every Center controller has a console capable of immediate telephone access to controllers in adjoining Centers. For example a controller in Salt Lake Center can in seconds be talking to his counterpart in Los Angeles, Denver, Seattle, Oakland, Minneapolis and Edmonton, Canada. Long distance lines do not end here. Telephone lines also provide the link to remote receiver and transmitter sites that may be hundreds of miles away. While some ARTC Centers operate as few as 15 of these remote facilities others may have 35.

In addition to immediate access to controllers in adjoining ARTC Centers, the controller also has direct telephone communications to flight service stations and control towers in his area. A Salt Lake Center controller has direct telephone contact with FSS and Control Tower facilities in Great Falls, Boise, Missoula, Miles City, Billings, Idaho Falls, Pocatello, Twin Falls, Reno, Sheridan, Elko, Ely and others.

Every controller in both center and tower is wired to a network providing him instant access to other controllers in his facility. It may be a punch of a button or a two digit dial.

EMERGENCIES

An inflight emergency can be a dramatic, sometimes frightening experience. Catching the action poses the problem because rarely are we on the appropriate frequency when the emergency is in progress.

To improve your chances of monitoring these exciting but fleeting moments here are a few suggestions.

First. Don't spend your time monitoring 121.50Mhz, the emergency frequency. Nearly all emergency communications take place on an air traffic control channel.

Second. Major hub airports have 24 hour full time rescue services with a police/fire dispatcher. Programming the dispatch channel in your scanner will inform you of the emergency at the same time rescue teams are alerted. Dispatchers provide rescue crews some details of the emergency including aircraft ID, nature of the emergency, estimated arrival time and landing runway. In some incidents this may not be the active runway. The reason for using a different runway from the active one is to avoid an extended runway closure in the event the aircraft can not be moved after landing. When rescue teams are alerted, note the aircraft identification and scan normal ATC frequencies for the aircraft in distress.

Third. Key phrases may alert you to an emergency. Some are "SOULS ON BOARD AND FUEL STATE." Another is "MISSED APPROACH." "DO YOU WANT THE EQUIPMENT?" meaning emergency vehicles such as fire truck, ambulance etc.

Fourth. Weather conditions are not only responsible for delays but may directly impact safety. Thunderstorms, turbulence, fog, icing, and high wind conditions add problems to flying. Being alert to these conditions will help you monitor emergencies you might otherwise miss.

GUARD CHANNEL

The military emergency frequency is 243.0. It is known as Guard or Guard Channel. Single pilot Navy and Air Force aircraft, such as fighters and attack aircraft are equipped with a separate, fixed tuned receiver for 243.0Mhz. Audio from this frequency and the tuneable receiver is fed simultaneously into the pilot's headset. Accordingly, any transmission on Guard/243.0 within several hundred miles will be received in the aircraft. This allows controllers and pilots to force an emergency message through the communications system to another pilot. This is, of course, a shotgun approach, all aircraft within range and equipped with a Guard receiver hear the message. Yet timely use of Guard Channel has saved many pilots and their aircraft.

Although basically a good concept, there are problems with the system. For one, ELTs carried by civil aircraft transmit a signal simultaneously on 121.5 and 243.0. These are relatively numerous and most are false alarms. The ELT signal is not only irritating and distracting but continues until the pilot silences his guard receiver. When he does so, advantages of the emergency receiver are lost until he remembers to restore it to service.

POLICE HELICOPTER OPERATIONS

The value of helicopters in law enforcement becomes readily apparent during our monitoring. Helicopters are especially useful in spotting suspected felons on roof tops, back yards and remote or wooded areas of the city. Similarly, police helicopters are often called upon to follow suspects involved in high speed pursuit or in providing surveillance of a suspect through heavy traffic. From monitoring chases you know they last but a few minutes ending when the suspect looses control of the car, which is often stolen and the cause for the action. Nearly every chase terminates with a successful arrest once fugitives are sighted by the helicopter. Working with ground units, helicopters operate on the same channel and often use a call sign identifying them, such as "Chopper One" or a similar call.

Night helicopter operations expose pilots to perils that may be difficult to appreciate. Although obstructions are lighted with blinkers, strobes and similar warning devices, depth perception at night ranges from poor to none. During the heat of the chase it would be much too easy to forget that antennas, smoke stacks and similar obstructions are nearly invisible.

Several years ago I monitored a chase as it began in the early evening in the suburbs of Ft Worth. A Texas Highway Patrolman and Ft Worth Helicopter joined pursuit. As the chase traversed various communities the agencies deferred to the Highway Patrol who continued pursuit to conclusion. The route travelled through Ft Worth, Arlington, Grand Prairie, Dallas, Farmers Branch and Carrollton often exceeding 100 mph. As the chase entered Grand Prairie a Dallas helicopter relieved the Ft Worth aircraft. Near the end, the suspect exited the freeway, went underneath and reversed course. A few miles later he reversed again returning to his original route. Failing to shake pursuit he exited the freeway in Carrollton and wrecked the new Lincoln just a few blocks from his residence. Once again surveillance from the helicopters provided tracking that led to a successful conclusion.

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TRAFFIC WATCH

Nearly every metropolitan area has a traffic service that provides surveillance of our highways and freeways during morning and evening rush hours. And conversation among pilots flying the traffic watch is more entertaining than information relayed through associated commercial AM/FM stations. Moreover, these reporters are often the first to sound the alert to fires and similar disasters. These side effects, provide a valuable service to the community, and one that usually goes unnoticed.

Pilots and reporters may be heard broadcasting their position so as to avoid near midair collisions while inspecting freeways for tieups. Pilots freely exchange information related to accidents, and similar details related to traffic situations. Cooperation seems more important than competition, with everyone willing to help the other when the need arises.

Helicopters are normally used for this service, although you may hear an occasional fixed wing aircraft. FAA Regulations allow helicopters to fly at lower altitude and in lower visibility conditions than fixed wing aircraft. Helicopters and traffic watch were made for each other. Very often aircraft use callsigns that identify them with a particular

radio or TV station. KTTV TV channel 5 in Ft Worth used "Chopper Five" and others had similar IDs.

Although 122.75Mhz is not a dedicated traffic watch channel, it is a common frequency. If it is not used in your area, search for this activity on the Unicom/Multicom band between 122.700 and 123.050Mhz. If traffic watch aircraft operate in your area, and you don't know their channels, try calling the FAA control tower. Although they may not have the information, you should receive a pleasant, polite response to your request.

Thunderstorms, fog and icing may ground traffic reporters and these same conditions often affect driving as well. Yet for me its always a surprise to hear reporters patrolling our freeways on days when the birds are walking.

If your scanner is portable or handheld, consider using it in your car to monitor traffic watch aircraft during those tedious drives to and from work. Not only will you avoid some delays, you may be adding a bit of flavoring to what has become a boring routine.

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CIVIL AIR PATROL

The Civil Air Patrol is an auxiliary of the U.S. Air Force whose mission is to locate lost or unreported aircraft. CAP Squadrons are composed of volunteers under the command of the USAF Search and Rescue Center at Scott AFB, Illinois. The Search and Rescue Center is responsible for and directs searches performed by the CAP as well as some other agencies in the U.S.

Communications and ground searches at airports along the route of flight are usually conducted before an air search is launched. Most often the CAP, State Highway Patrol or Sheriffs Deputies conduct the ground search at airports along the flight route. If the aircraft is not found, an air search may be ordered. It could involve several states and many aircraft.

Recent technological advances have helped to narrow the search area and have simplified the task of locating downed aircraft.

One of these involves a computer tracking record provided by FAA Air Route Traffic Control Centers. Transponder equipped aircraft leave a trail that can be extracted from the computer. Analyzing the data is a tedious and time consuming task. Moreover, if many aircraft have flown a similar route, it may be impossible to identify individual tracks. Yet this procedure has saved lives by directing searchers to downed aircraft, frequently to within a few hundred yards of the computer track.

A second means of pinpointing aircraft comes from a satellite tracking system. The satellite is alerted by the Emergency Locator Transmitter (ELT) carried in private aircraft. This system has demonstrated pin point accuracy on occasion, but all too often the ELT signal is a false alarm. Studies show 95% of ELT alerts are erroneous. And while ELTs have saved lives by leading rescuers to the accident site, these erroneous signals are a continuing source of frustration for CAP personnel.

In addition to activating the tracking satellite, an ELT signal may be tracked by direction finding equipment. When an ELT is heard, the CAP will conduct a ground search with DF equipment in an attempt to locate the offending ELT. All too often the aircraft is found at the local airport in its reserved parking place. It may have been activated by a hard landing. When clues point to an off airport ELT signal, a ground search or an air search or both may be launched to look for the aircraft.

The CAP uses 148.15Mhz for emergency and routine communications. Other CAP frequencies include 143.50, 143.90 and 149.925Mhz.

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NON-EMERGENCY PARACHUTE JUMPING

Until 15 years ago parachuting was unregulated. Jumpers were free to go as the spirit moved them. Then a freak accident near Cleveland resulted in death to parachutists who jumped above a cloud layer and landed in Lake Erie. Most drowned. As a result new regulations were issued to prevent similar accidents.

Today ATC approval is required before jumpers may be released. The pilot may call the Center, Tower or Approach Control for permission.

The FAA has several concerns related to non-emergency parachute jumping.

One, that jumps are made in VFR (Visual Flight Rule) conditions so lives are not jeopardized jumping through clouds.

Two, that jumpers avoid threat of collision to aircraft traversing the jump area.

More than 500 jump areas are listed in the U.S. And many are active on weekends and holidays. At the Air Force Academy in Colorado Springs parachutists can be observed on any weekend when the weather permits jumping. In the fall, football fans are treated with jumps at every home game and most jumpers land in a small circle in the center of the playing field. These chutes are very responsive and almost seem to be a hybrid parachute/glider. Should you wish to monitor this activity, listen on the VHF tower or approach control channels. The jump aircraft uses the call sign "Congo" and will request permission before releasing jumpers.

Years ago in Korea while I was riding the jumpseat of an Air America DC-6, the Captain related an incident that transpired on his flight a few days earlier.

After departing Osan Air Base climbing southwest, the captain observed an object fall in front of the aircraft. Then several more were seen falling almost directly ahead. Moments later they observed several parachutes just as they blossomed.

Only then did they realize these objects were jumpers. The captain's concern was not for the jumpers but for his aircraft. If birds the size of a chicken can mortally wound an aircraft, obviously jumpers pose an equally serious threat.

At Webb AFB in 1977 the Flying Safety Officer read this article to pilots gathered for a monthly Safety Meeting.

"Sport parachuting is normally a safe pastime. Yet, accidents do occur and recent one may be unique.

Three parachutists, two students and an instructor, planned to make a jump from 2500 feet. The first jumper exited the Cessna without difficulty. The second slipped on the exit step and fell in front of the landing gear. As he fell he grabbed at the wing strut, hung momentarily and let go. Adding insult to injury, his parachute deployed and tangled with the landing gear.

Now the student parachutist was dangling below and aft of the aircraft. In this rather awkward and embarrassing situation the instructor began cutting the student loose. Before he could do so, the student triggered his reserve chute. Now the real action commenced. The aircraft stalled, went inverted and ended up hanging under the parachute. The engine quit and the entire gaggle plunged to earth.

Remarkably no one was killed. The aircraft was demolished and the occupants suffered various fractures. As you might have guessed, the student was uninjured!"

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UNICOM

Unicom is a non-government communications facility providing airport information. Its use is limited to weather, runway in use, fueling, transportation, food and lodging. Unicom channels at non-tower airports are 122.70, 122.80, 122.90 and 123.00. At airports with a control tower the Unicom frequency is 122.95.

Multicom is a non-public service for providing communications for private aircraft. It may be used in ranching, agriculture, soil conservation, forest fire fighting, parachuting and aerial advertising. Multicom channels are 122.85, 122.90, 122.925, 123.05 (Helicopters) and 123.45 (Airlines).

At airports with a control tower UNICOM is used most often for fuel service and parking. While at uncontrolled airports the UNICOM station may issue airport advisory information in addition to information related to fueling and parking. Advisories usually consists of wind direction, altimeter setting, runway in use and traffic information.

Though regulations do not require pilots to contact or monitor UNICOM frequency at uncontrolled airports, it is a good practice to do so. Arriving pilots will often broadcast their position and intentions to land on the UNICOM channel. In doing so other pilots are alerted to the arriving aircraft and will alter their traffic pattern as necessary.

Unicom channels may not be used to control air traffic nor to relay air traffic control communications.

HIGH ALTITUDE FLYING AND HYPOXIA

One facet of flying rarely reported are problems related to high altitude operations. Commercial aircraft are pressurized and seldom exceed cabin pressure altitudes above ten thousand feet. Yet on the ground mild oxygen starvation may be experienced while driving high mountain roads. Exceeding ten thousand feet the results are evident to our bodies and automobiles. Neither functions as well as it does near sea level.

Somewhere above twelve to fourteen thousand feet the reduced oxygen supply begins to deceive our mind and distort our judgement. This lack of oxygen manifests itself in different ways that often appear humorous. Some people appear mildly inebriated, and seem to thoroughly enjoy the experience. For others the symptoms may be sleepiness and nausea, a less pleasant condition but equally hazardous to your health.

Hypoxia, the medical term for oxygen starvation, affects us differently. Moreover the symptoms are insidious and few of us recognize them as they are occurring. Military pilots attend courses dealing with hypoxia which include the use of oxygen equipment and emergency ejection systems. After their classroom courses, pilots actually experience hypoxia with a high altitude flight in a low pressure chamber. Navy instructors make a point during their lectures, of never having lost a person in their low pressure chamber. Commendable as it may be, the statement fails to promote an impression of confidence, implying lives have been lost during chamber flights.

From the outside the chamber resembles a huge steel aquarium with large, thick window panes. On the inside its the Star Ship Enterprise where you face a multitude of gages, dials, altimeters, climb/descent indicators as well as an array of flight helmets and oxygen masks. The chamber holds twenty people and two or three instructors. A smaller cell at the entry, used for simulating rapid decompression, accommodates six or eight.

At 18,000 feet the atmosphere supplies but one half the oxygen available to us at sea level. And above 25,000 consciousness will be lost if your mask is removed for several minutes. Above 35,000 even 100% oxygen is not sufficient to maintain optimum coordination and alertness. And breathing systems are designed to force oxygen into our lungs under pressure above an altitude of 35,000. The process is aptly termed pressure breathing.

During normal breathing patterns we take a breath, expel it and repeat the process, doing so without conscious effort. Breathing under pressure is a unique experience, and takes some practice. Lapsing into normal habits, it can become an exciting ordeal. Pressurized oxygen inflates our chest and requires a conscious effort to exhale. After exhaling it seems natural to relax. When you do, your lungs are quickly and unexpectedly pumped full of oxygen. This may result in hyperventilation, dizziness and eventually loss of consciousness. It may sound frightening, but really isn't.

Being lazy by nature, I found pressure breathing a pleasant and relaxing experience. And relaxing is the key to the affair.

BLIMPS

The Goodyear Tire and Rubber Company operates three blimps in the U.S., based in Miami, Houston and Los Angeles.

Columbia 4A America N3A Enterprise N1A

Each blimp is equipped with a 720 channel VHF transceiver for the aircraft band. Blimps have been monitored on 132.00 and 123.05 as well as other ATC channels. Monitor listeners report 151.625 is used for communications with ground support crews.

Travelling to special events, blimps are followed by and in radio contact with their ground support vehicles. These 18 wheelers transport tools, mooring masts and other accessories necessary to maintain the blimp.

With blimps cruising a spirited 35mph under no wind conditions, support crews easily maintain the pace. Yet light winds are as rare as a snow storm in Miami, and even moderate winds pose a challenge. Headwinds can reduce ground speed to zero while tailwinds could make for a chase.

For special events tied in with TV coverage, the frequency used is one assigned to the television network or station using the blimp as an airborne camera platform.

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Before the days of radar when I was a controller in the Cleveland Center, one busy evening I received an unusual call from Akron Radio. The FSS specialist requested an instrument clearance for a blimp on a flight from Akron to Washington specifying minimum enroute altitude and an airspeed of 35 mph. And while it was a serious matter, I couldn't keep from laughing. NO WAY! The blimp would have restricted air traffic for hours. Imagine a long convoy of Army trucks slowly travelling the freeway. Moving in the right lane, the convoy blocks exits and entrances. Entering and exiting traffic must wait for the convoy! Would this tie up traffic? Only 'til New Years. The same would have been true of air traffic had the blimp been allowed to make the flight.

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In 1970 the Goodyear blimp Columbia was covering an Oakland Raider football game when I was given the opportunity to ride with it. Somewhat quieter and smoother than helicopters, otherwise the perception was similar. On departure our steep angle of climb and slow airspeed told me we should be falling out of the sky, but of course we didn't. Obviously a blimp does not stall at slow airspeed as would an airplane. Yet as a pilot it was a disturbing sensation seeing the nose pointed upward at an abrupt angle! While experience declared you are about to fall out of the sky, reasoning said relax and enjoy yourself! And, of course, I did.

AIR SHOW FREQUENCY LIST

Monitoring the Blue Angels, Thunderbirds and other military demonstration teams you can expect to hear terms relating to coordination, maneuvers, power adjustments, speed, pitchouts, breaks, sequencing, smoke on and off, timing and similar themes. Program AM mode into your scanner. Underlined frequencies are those most frequently monitored.

The Blue Angels use 251.6 for their formation exercises while solo performers will be heard on 275.35 during their maneuvers.

Navy Demonstration Team - Blue Angels

142.00	143.00	142.625	142.025	142.265
251.6		275.35		

USAF Demonstration Team - Thunderbirds

141.055	141.30	141.85	143.58	148.55

ATC instructions between T-Birds and Tower are sometimes relayed through a coordinator on the same channel - 141.85. Listeners have verified 141.055 as a channel used by the T-Birds. Look for support activities on 413.025.

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U. S. Department of Agriculture
Forest Service

Frequency	Service	Frequency	Service
* 168.05	Tactical 1	166.675	Air Tactical
* 168.20	Tactical 2	169.15	Air Tactical
* 168.60	Tactical 3	169.20	Air Tactical
168.70	Command 1	* 170.00	Air Tactical
* 168.10	Command 2	168.625	Emergency
* 168.075	Command 3	* 166.375	Park Channel

U. S. Department of Interior
Bureau of Land Management

166.6125	166.725	* 166.775	* 167.100
167.950	168.250	168.400	168.475
168.550	* 169.350	169.750	172.600
173.8125	Helicopters monitored on 119.95/122.85.		

BLM and USFS often share radio resources, and fire crews use frequencies assigned to either agency. Major fires are common west of the Mississippi River between May and October. The heaviest radio traffic occurs between noon and sunset which is also the peak burn period. *These channels were monitored on 9/7/88 at Yellowstone when fires were active.

ARINC NETWORK AND WORLD WIDE AIR/GROUND FACILITIES

ARINC is an abbreviation for Aeronautical Radio, Inc. ARINC provides information, facilities and other services specifically for the aviation community. Domestic VHF channels are used for handling of company communications. On overseas routes ARINC HF facilities provide communications services for airline companies and FAA air traffic control.

ARINC VHF channels across the continental U.S. are operated by remote control from major centers in New York, Miami, San Juan, Honolulu and San Francisco.

128.90	Cleveland	Pittsburg	Harrisburg
	Altoona	Whiteplains	New York
	San Diego	Mt Laguna, Ca	Palm Springs
	Phoenix	Tucson	El Paso
	Las Cruces, NM	Midland, Tx	Dallas/Ft Worth
129.35	St Louis	Indianapolis	Louisville
	Dayton	Lexington	Cincinnatti
	Chicago	Cleveland	Williamsport
	New York		
129.40	Brownsville, Tx	Cameron, La	Venice, La
	Pensacola	Sarasota	Miami
	Escanaba, Mi	Green Bay	Toronto
	Grand Rapids	Binghamton	Burlington
	Boston	Portland, Me	Bangor
	New York		
129.45	Salt Lake City	Denver	McCook, Ne
	Lincoln	Omaha	Des Moines
	Cedar Rapids	Moline, Il	Chicago
	Atlanta	Charleston, SC	Charlotte
	Roanoke	Raleigh	Norfolk
	Washington	Philadelphia	New York
131.175	Shreveport, La	Jackson, Ms	New Orleans
	Bainbridge, Ga	Tampa	Ft Myers
	Miami		
130.20	Dallas/Ft Worth	Little Rock	Memphis
	Nashville	Paducah, Ky	Huntsville
	Birmingham	Knoxville	Baltimore
	Charleston, WV	Washington	LaGuardia
	New York	Las Vegas	Denver
	Bryce Canyon, Ut	Pueblo, Co	Salt Lake City
	Green River, Ut		
130.35	Newark	New York	

130.40	Pendleton, Or	Boise, Id	Idaho Falls
	Salt Lake City	Rock Springs, Wy	Casper, Wy
	Tonopah, Nv	Ely, Nv	Elko, Nv
	Winnemucca, Nv	Reno	San Francisco
	Sacramento	Scottsbluff, Ne	O'Neil, Ne
	San Juan, PR	South Bend	Ft Wayne
	Columbus, Oh	Toledo	Detroit
	Cleveland	Akron	Youngstown
130.425	San Jose	Monterrey	Santa Barbara
	Long Beach	Ontario	Lubbock, Tx
	Colorado Springs	Huntsville	New Orleans
	Ft Myers	Ft Lauderdale	Orlando
	West Palm Beach	Columbia, SC	Lexington
	Dayton	Saginaw	Lansing
	Albany, NY	Manchester	Portland, Me
	Hartford		
130.80	San Francisco	San Jose	Fresno
	Santa Maria, Ca	Ontario	Santa Barbara
	Los Angeles	Long Beach	San Diego
131.30	Los Angeles	Las Vegas	Albuquerque
	Williams, Az	Farmington, NM	Alamosa, Co
	Garden City, Ks	Wichita	Kansas City
131.65	Lubbock, Tx	Amarillo	Oklahoma City
	Tulsa	St Louis	Peoria, Ill
	Chicago	Dallas/Ft Worth	Austin
	San Antonio	Corpus Christi	Houston
131.70	Miami	West Palm Beach	Jacksonville
	Ft Lauderdale	Orlando	
131.80	Seattle	Spokane	Great Falls
	Mullan Pass, Id	Butte	Salt Lake City
	Billings	Mobridge, SD	Grand Forks
	Rapid City	Sioux Falls	Minneapolis
	Madison	Chicago	Milwaukee
131.95	San Francisco	Santa Barbara	

Nearly every VHF channel used by ARINC will be found in the 128.00 through 132.00 portion of the band. Searching this band you may find other items of interest. Waiting for a flight at DFW airport, I searched this band and found several interesting frequencies. They were ramp control channels used by Delta and American Airlines, on 131.275, 130.275 and 129.825.

Major carriers have assigned channels for operations and others for maintenance. Although I've never seen them in aeronautical publications, they may be printed in some source material. These channels can be found in the band segment mentioned above.

MILITARY AIRLIFT COMMAND

If you monitor MAC aircraft, you recognize the similarity to aircarrier operations. MAC hauls passengers, equipment and cargo in huge volumes at great speeds over long distances. As a result dispatching, maintenance, loading, and fueling are similar.

MAC operates a number of different aircraft but the majority will be among C-5, C-9, and C-141 aircraft. Most are equipped with the following radio gear:

1. HF single side band.
2. Standard civil 720 channel VHF radios.
3. UHF equipment for operating in the 225-400Mhz military band.

Monitoring MAC aircraft you hear them contact military units on HF/VHF/UHF frequencies. They communicate with civil ATC facilities on both VHF and UHF channels. Flying oceanic routes you will hear MAC aircraft making progress reports and receiving clearances through ARINC on HF.

STRATEGIC AIR COMMAND

SAC appears to have four major missions. These are:

1. BOMBING. Using the B-52 and supersonic B-1. Check bomb plot frequencies.

2. MISSILES. SAC maintains, operates and controls most of our medium and long range missiles. Few channels available. Look under military operations.

3. REFUELING. Tanker aircraft provide nearly all aerial refueling of USAF aircraft including SAC, TAC and MAC. Complete listing for U.S.

4. RECONNAISSANCE. SAC performes high altitude reconnaissance observations. No frequencies available. May be classified.

Many low level SAC routes terminate with a simulated bomb run. You may hear an exchange of data prior to and after the drop.

TACTICAL AIR COMMAND

TAC means fighter aircraft. And as you might expect, these channels sometimes make for exciting listening. TAC operations take place in SPECIAL USE AIRSPACE designated as a MOA (Military Operating Area) a Restricted Area or a Warning Area if it is off shore over water.

These frequencies are active with simulated air to air combat, bombing and strafing, anti-tank demolition and similar exercises. They can provide an exciting afternoon if you catch them active. Check "Special Military Frequencies."

REFUELLING ROUTES FREQUENCIES AND CONTROLLING ARTC CENTER

Most aerial refuelling takes place at high altitude (between FL-190 and FL-310) providing exceptional range for monitoring - up to 150 miles or more.

Refuelling is conducted along specific tracks or in designated areas as well as in off shore regions used for this and other missions. Each route or area is assigned a specific track number. See map inside back cover.

Route	Freq	Backup	Location	Center	Entry	Exit
AR-1	343.5	319.5	Id/Nv/Ut/Wy	Salt Lake	397.9	263.1
AR-2	283.9	319.5	Id/Nv/Ut/Wy	Salt Lake	323.0	269.0
AR-3H	344.7	275.95	Az/NM	Los Angeles	323.2	319.1
AR-3L	235.1	319.5	Az/NM	Denver	343.7	343.7
AR-4A	344.7	292.6	Or/Id	Seattle	290.5	251.1
AR-4B	235.1	292.6	Or/Id	Seattle	290.5	251.1
AR-5H	283.9	319.5	Pacific	Oakland	281.4	281.4
AR-5L	289.7	319.5	Pacific	Oakland	281.4	281.4
AR-6	293.0	319.5	Cal Coast	Oakland	290.5	290.3
AR-7A	276.5	319.5	Ca/Or	Seattle	327.1	
AR-7B	295.4	319.5	Ca/Or	Oakland	269.1	327.1
AR-8A	295.8	319.5	Ca/Or	Seattle	360.7	279.6
AR-8B	305.5	319.5	Ca/Or	Seattle	360.7	279.6
AR-9	238.9	292.6	Wn/Id/Mt	Salt Lake	251.1	269.4
AR-10	289.7	292.6	Wn/Id/Mt	Seattle	251.1	263.1
AR-11A	344.7	320.9	Wy/Ne	Denver	322.5	257.9
AR-11B	235.1	320.9	Wy/Ne	Denver	350.3	257.9
AR-12	293.0	320.9	Mt/SD	Salt Lake	269.4	
AR-13	238.9	260.2	NM/Tx/Ok	Ft Worth	381.6	285.6
AR-14A	279.8	366.3	Wy/SD	Denver	239.0	269.6
AR-14B	292.6	276.4	Wy/SD	Denver	239.0	269.6
AR-16	343.5	319.7	Mo/Il/In	Chicago	362.3	353.8
AR-17A	276.5	320.9	SD/Ne/Ks	Denver	338.2	353.7
AR-17B	295.4	320.9	SD/Ne/Ks	Denver	338.2	353.7
AR-101	324.6	260.2	Ar/Ms/La	Memphis	335.5	269.5
AR-102A	276.5	260.2	Tx	Ft Worth	323.0	327.8
AR-103	327.6	260.2	Ms/La/Gulf	Houston		
AR-104	344.7	260.2	Tx	Ft Worth	269.0	351.9
AR-105A	238.9	320.9	Ne/Ia	Minneapolis	269.0	269.0
AR-106H	295.8	320.9	ND/SD/Mt	Minneapolis	269.4	306.2
AR-106L	305.5	320.9	ND/SD/Mt	Minneapolis	269.4	306.2
AR-107	324.6	282.7	Mi	Minneapolis	353.6	353.6
AR-108	348.9	260.2	Gulf Mexico	Houston	360.3	269.5
AR-109H	343.5	320.9	Mn/Wi/Mi	Minneapolis	327.1	327.1
AR-109L	327.6	320.9	Mn/Wi/Mi	Minneapolis	327.1	327.1
AR-110	327.6	319.7	Ks/Mo/Il	Kansas City	277.4	346.4
AR-111	348.9	319.7	Mo/Il/In/Ky	Memphis	257.6	285.5
AR-112	235.1	260.2	Ok/Ar	Ft Worth	363.1	353.8
AR-113	283.9	260.3	Tx	Ft Worth	360.8	353.7

Route	Freq.	Backup	Location	Center	Entry	Exit
AR-114	289.7	260.2	Tx	Ft Worth	360.8	343.6
AR-116	289.7	260.2	Ks/Mo	Kansas City	269.4	343.7
AR-167	235.1	260.2	Tx	Houston	380.2	323.1
AR-200	235.1	319.7	Al/Ga/Fl	Miami	307.2	290.5
AR-201	336.1	319.5	Ut/Co	Salt Lake	271.2	343.7
AR-202S	327.6	319.7	Atlantic	Jacksonville	317.4	307.8
AR-203	238.9	319.7	Ky	Memphis	354.0	338.3
AR-204	324.6	282.7	NY/Vt/NH/Me	Boston	282.2	319.1
AR-205	327.6	282.7	NY/Vt/NH/Me	Boston	319.1	380.3
AR-206H	348.9	282.7	NY/Ontario	Cleveland	284.6	354.1
AR-206L	235.1	282.7	NY/Ontario	Cleveland	335.5	307.8
AR-207	324.6	319.7	Ga/SC/NC	Jacksonville	352.0	346.3
AR-210	337.4	339.4	East Canada	Moncton		
AR-211	365.4	339.4	East Canada	Moncton/Gander		
AR-212	238.9	282.7	NY/Vt/NH/Me	Boston	282.2	346.4
AR-216	276.5	319.7	Al/Ga/NC/Va	Atlanta	363.1	257.9
AR-217	283.9	282.7	Oh/Pa	Cleveland	306.3	317.4
AR-218H	289.7	282.7	Oh/Pa	Cleveland	363.1	288.3
AR-218L	293.0	282.7	Oh/Pa	Cleveland	307.1	269.3
AR-302	289.7	260.2	La/Ms/Al	Houston	281.5	291.7
AR-307	276.5	319.5	Az	Albuquerque	298.9	343.9
AR-309	283.9	260.2	Ks/Mo	Kansas City	281.4	279.5
AR-310	293.0	319.5	Az/NM	Albuquerque	343.9	251.1
AR-312	322.8	260.2	Co/Ok/Tx	Albuquerque	351.7	
AR-313	293.0	260.2	Ok/Ar/La	Ft Worth	285.5	291.7
AR-314	295.8	319.5	NM/Tx	Albuquerque	319.9	381.6
AR-315	295.4	319.7	In/Ky	Indianapolis	372.0	319.9
AR-318	295.8	260.2	Ks/Mo/Il	Kansas City	343.7	353.5
AR-321	276.5	282.7	Wi/Mi	Chicago	263.0	263.0
AR-328	235.1	319.7	Va	Atlanta	319.9	319.9
AR-330	305.5	260.2	Ks/Mo	Kansas City	337.4	327.0
AR-453	322.8	320.9	ND	Minneapolis	270.3	270.3
AR-461	352.7	260.2	Co/Ks/Mo	Kansas City	281.4	273.6
AR-600	348.9	319.7	SC	Jacksonville	269.6	
AR-601	283.9	319.7	Atlantic	Jacksonville	381.4	
AR-602	295.4	319.5	NM	Albuquerque	251.1	
AR-603	238.9	319.5	Az	Albuquerque	285.4	
AR-604	276.5	292.6	Mt	Salt Lake	269.4	
AR-605	235.1	292.6	Mt/ND	Salt Lake	269.4	
AR-606	289.7	320.9	ND	Minneapolis	270.3	
AR-607	235.1	320.9	Mi/Mn	Minneapolis	269.0	
AR-608	343.5	282.7	Atlantic	Boston	307.3	
AR-609	276.5	282.7	NY	Boston	323.0	
AR-610	295.4	292.6	Mt	Salt Lake	338.3	
AR-612	295.4	282.7	Atlantic	Washington	306.9	
AR-613	305.5	319.5	Az	Albuquerque	351.8	
AR-614	293.0	260.2	Tx	Houston	299.2	
AR-615	295.4	260.2	La/Ms	Houston		
AR-616	283.9	282.7	Atlantic	Boston	269.6	
AR-617	324.6	319.7	Atlantic	Miami	281.4	
AR-618	348.9	319.7	Gulf	Miami	363.1	
AR-619	238.9	320.9	ND/Mn	Minneapolis	270.3	

Route	Freq.	Backup	Location	Center	Entry	Exit
AR-620	238.9	319.7	Fl	Miami	349.0	
AR-621	344.7	319.5	Pacific	Oakland	335.6	
AR-622	352.9	320.9	Co/Ne	Denver	281.5	272.7
AR-623	359.1	319.5	NM/Tx	Albuquerque	351.7	353.8
AR-624	289.7	319.5	Az	Los Angeles		
AR-625H	295.8	319.5	Ca/Nv	Oakland	319.8	
AR-625L	322.8	319.5	Ca/Nv	Oakland	319.8	
AR-626	235.1	292.6	Wn Coast	Seattle	319.2	269.0
AR-627	293.0	319.7	Ga	Jacksonville	379.2	
AR-628	343.5	292.6	Wa	Seattle	379.6	
AR-629	296.0	360.9	ND	Salt Lake		
AR-630	238.9	292.6	Wa	Seattle	360.7	
AR-631	295.8	282.7	Atlantic	Boston	348.7	
AR-632	238.9	282.7	Mi	Minneapolis		
AR-633	295.8	319.7	Tn	Atlanta	254.3	253.5
AR-634	235.1	319.5	Ca	Oakland	307.0	
AR-635	293.0	319.5	Nv/Ut	Salt Lake	360.8	
AR-636	238.9	319.7	Atlantic	Washington	306.9	
AR-637	322.8	319.7	Mo	Kansas City	317.5	
AR-638	324.6	319.7	Fl	Miami	323.0	
AR-639	336.1	344.7	Az	Albuquerque	281.5	351.8
AR-639A	322.8	319.5	Az	Albuquerque		
AR-640A	305.5	320.9	Wi	Chicago		
AR-640B	322.8	320.9	Wi	Chicago		
AR-641	295.4	319.5	Nv	Los Angeles	343.6	
AR-642E	305.5	319.5	Nv/Ut	Salt Lake		
AR-643	370.4	260.2	Co	Denver	335.5	317.5
AR-644	324.4	319.5	NM	Albuquerque		
AR-645	324.4	292.6	Or	Seattle	351.7	
AR-646	238.9	260.2	Gulf	Houston		
AR-647	295.4	319.5	Az	Albuquerque		
AR-648	238.9	319.5	Nv	Salt Lake	269.0	
AR-649	352.7	319.5	Ca/Az	Los Angeles		
AR-650	295.8	260.2	Tx	Albuquerque		
AR-651	276.5	319.5	Ca	Los Angeles	338.3	
AR-653	324.4	260.2	Ks	Kansas City	363.2	
AR-655	276.5	319.7	Gulf	Miami	307.3	
AR-716	283.9	319.7	Gulf	Miami	363.1	
AR-717	283.9	292.6	N Wn/Id/Mt	Seattle	291.6	

Refuelling conducted off shore in the Atlantic, Pacific or Gulf of Mexico will often be in contact with the Fleet Area Survillance Facility. These frequencies are listed under FASFAC.

Helicopters are also refuelled in flight, usually with C-130's serving as the tanker. Where helicopters are based in large numbers tracks have been designed specifically for their use. Refuelling altitudes will be three to five thousand feet above ground level limiting monitoring range for these operations to fifty or seventy five miles. Tactical squadron channels are used for these missions and are not available to us.

FLEET AREA CONTROL AND SURVEILLANCE FACILITY (FACSFAC)

Invisible hazards to flying occur over many areas of the country and international waters. On aviation charts and maps these are shown in several different ways. Some are pictured as Restricted Areas others Prohibited Areas and over water they are designated as Warning Areas. Flight through Restricted and Prohibited areas is a violation of Federal Aviation Regulations but more important it could be exceedingly hazardous. Some examples of the hazards are artillery firing, bombing, simulated air to air combat, missile firing and similar operations.

Warning Areas fall in a special category. Located over international waters, no government has the authority to regulate or prohibit flight through these areas. Therefore, Warning Areas are treated similarly to Restricted and Prohibited Areas. To alert air traffic the U. S. Navy has established a program called Fleet Area Control and Surveillance Facility (FACSFAC). Those within range could be in for some interesting action. These are the four areas, associated facilities and frequencies.

1. Eastern U.S. using the call sign "Giant Killer" and located on the Virgina coast.

VHF	127.65	135.875	135.725	135.225	*138.725	
UHF	233.7	350.0	251.6	310.1	*249.8	238.1
	253.2	271.5	289.9	291.2	255.0	338.1
	305.0	312.3	312.6	344.5	346.6	357.8
HF	(USB)	2252	4373			

* Primary for Warning Areas W-107 and W-108

2. Southeastern U.S. using the call sign "Sealord" at locations near Jacksonville, Fla, Beaufort, S.C. and Patrick AFB, Fla.

VHF	120.95	134.65	135.925	135.825	
UHF	267.5	284.5	313.7	369.9	
ATIS		265.2			
HF	(USB)	3130	6723	6742	11252

3. Gulf of Mexico using the call sign "Seabreeze" located near Pensacola, Fla.

VHF	118.425				
UHF	313.2	275.6	303.4	280.7	383.8
	274.2	306.8	346.5	353.2	385.2
	382.0	362.8			
HF	(USB)	6835			

4. Southwestern U.S. using the call sign "Beaver" located near San Diego, Ca.

VHF	118.65	120.85	123.275	126.75	126.85	127.55
	131.775					
UHF	285.7	289.9	272.6	266.9	314.7	344.1
ATIS	282.0					

SPECIAL PURPOSE CHANNELS

Call Sign	Frequency				Operating Area
Alley Cat	364.1				West Florida Coast
Arizona Pete	254.2	269.8	270.2	236.2	Southern Arizona
Baron Control	379.4				Southeast Nevada
Barrie	325.8				West Florida Coast
Beaver	289.9	120.85			Southern Calif. Coast
Beaver	244.1	263.3			Southern Calif. Coast
Beaver	285.7	289.9			Southern Calif. Coast
Beaver Dam	279.1				Colorado
Big Foot	238.4	260.8	256.6	292.7	Northern Montana
Big Foot	364.2	364.3			North Dakota
Big Foot	252.0	364.2			Oregon Coast
Big Foot	271.0				Northern Wa/Id/Mt
Blackjack	377.8				Nevada
Boat Sail	283.8	314.2			Northern New York
Brochure	298.775	252.975			Southeast Wisconsin
Cherokee	294.6	295.2		126.95	NM White Sands Msl Range
Central Coor. Fac.	279.9				Calif/Nevada
Cisco	271.1	322.7			Northeastern Tennessee
Clover	301.7	311.3		233.4	Western Utah
Clover	298.6	339.0		134.1	Western Utah
Cornfed	361.4	395.1			Southern Colorado
Dragnet	239.4	308.8			Northern New York
Dragnet	379.4				Southeast Nevada
Eagle Range Tower	351.0				Utah
Eagle Range	298.6				Utah
Fallon Desert Ctl	263.6				Nevada
Free Mason	286.7	321.2			South Carolina Coast
Footrope	301.6	314.2			Vermont/New Hampshire
Giant Killer	233.7				Maryland Coast
Huntress	364.2				Wisconsin & New York
Huntress	228.7	309.5			Northern New York
Incognito	364.2				Northern Michigan
Incognito	360.8				Northern New York
Jayhawk	228.95	303.0			Northern Kansas
King Cole	292.3	363.9			Maryland Coast
King Cole	321.2				Maryland Coast
Long Racks	337.4	253.4			Oregon Coast
Nellis Control	343.0	253.4			Nevada
Nellis Control	392.1	338.7			Nevada
Oak Grove	364.2				Maryland Coast
O'Grady	358.2				Southern Arizona
O'Grady	321.2	286.2			North Eastern New Mexico
Roadstead	259.4	267.8			Vermont/New Hampshire
Sierra Pete	364.2	387.8	324.0	316.3	Central Calif. Coast
Silver Bow	272.5	260.95			Nevada
Sleekness	340.8	259.4			Vermont/New Hampshire
Spirit	303.0	314.2		354.2	SW Nebraska, NE Colo
Wlrd Pittman	253.4	337.4			Northern Wa/Id/Mt

MISSION/RANGE CONTROL FREQUENCIES

Sheboygan, Wi	260.40/358.2	Ft Carson, Co	253.625
Sheboygan, Wi	297.1	Buckley ANG, Co	287.30
Ft McCoy, Wi	247.40	Englin, Fl	262.3/315.9
Claiborne, La	298.6	Yuma, Az	274.0
Eielson, Ak	255.2/229.4	Gila Bend, Az	272.1
Shelby, Fl	297.1	Point Mugu, Ca	305.0/306.6

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MAJOR COMMAND CHANNELS

SAC	311.00	321.00	372.20	375.70	
TAC	381.30	270.80	256.30	381.40	
NORAD	364.20	264.90	321.20	269.90	282.60

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BOMB PLOT LOCATIONS AND FREQUENCIES

Ashland, Me	356.8	Baker, Or	226.0
Belle Fouche, SD	381.1	Conrad, Mt	258.3
Cheyenne, Wy	271.9	Dickenson, ND	396.925
Forsyth, Mt	363.9/226.0	Gillette, Wy	238.6
Glendive, Mt	283.7	Gordon, Ne	225.175
Hastings, Ne	354.3	Havre, Mt	238.2
Holbrok, Az	356.8	La Junta, Co	258.2
Lewiston, Mt	271.9/288.6	Powell, Wy	234.8
Richmond, Va	354.3	Rock Sps, Wy	385.7
Wilder, Id	258.2	Wolf Point, Mt	290.8
Yuma, Az	225.075		

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RESTRICTED AND MILITARY OPERATING AREAS

Kiowa	237.2/232.7	Pennsylvania
Farmville	377.1/377.1	Virginia
Cradle	272.0	New Mexico
Hog	305.4/399.8	Arkansas
Jena	288.1	Louisiana
India	261.0	Louisiana
Desert	392.1/377.8/263.6	Nevada
Belle Creek	277.2/377.7	S. Dakota
Williams	398.9	Arizona
Hot Rock	321.3	Louisiana
Sevier	301.7/233.4	Utah/Nevada
Dutchman	237.2/232.7	Colorado
Camden Ridge	267.9	
Gamecock	287.1	South Carolina
Morenci	287.4	Arizona
Tombstone	351.4/286.4	Arizona
Fuzzy	264.8	Arizona
Sells	379.4	Arizona
Bell Creek	277.2/377.7	South Dakota
R-2914	262.3/291.8	Florida/Georgia
R-2914	296.1/257.0	Florida/Georgia
R-4201	385.7/381.1	Michigan
R6904	358.2/297.1	Wisconsin

Flight through MOAs does not require specific approval. Yet pilots are urged to use caution when traversing this airspace because hazardous activities take place within these areas. These include flight training, combat exercises, intercept operations and similar maneuvers. Some MOAs generate a great deal of radio activity, while others do not. The mission determines the amount of communications traffic within the MOA.

MOAs and Restricted Areas shown on the opposite page are only a few of those located throughout the U.S. These were selected because of known UHF radio activities that take place in these MOAs and Restricted areas.

Flight within Restricted Areas requires specific approval. Authorization is granted by the controlling ARTC Center when the areas are not in use. You may hear the term "hot or cold" to report the status of a particular area. A few areas are never opened to civil traffic or only under special conditions. One of these is White Sands Missile Range. At certain times traffic is permitted to fly across the range at high altitude, usually above FL-250. Operation at lower altitudes might compromise classified projects on the range.

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COMBAT EXERCISES AND TRAINING

"Top Gun" the movie portrayed some superb air to air combat scenes. Similar exercises can be monitored on some of the channels listed above at ranges up to 100 miles or more. Top Gun identifies Navy exercises while Red Flag identifies similar competition by the USAF.

Miramar NAS the home of Top Gun Operations operates primarily in Warning areas off the San Diego Coast. Look for their air combat frequencies listed under Navy FASFAC in this directory. Others may be active on the East Coast and in the Gulf of Mexico.

Red Flag maneuvers are flown by USAF and Air National Guard pilots in the Special Use Airspace north of Nellis AFB near Las Vegas. While these are the most widely known, similar exercises take place at other locations. Holloman AFB uses White Sands Missile Range and MOAs in Texas and Arizona for F-15 training. As a rule of thumb, you may assume that where ever fighter aircraft are based, airspace in nearby areas has been set aside for combat training maneuvers.

USAF fighter pilots receive advanced training at Holloman AFB, New Mexico. Many of these flights are conducted in Restricted Airspace surrounding White Sands Missile Range.

Not only does the Navy exercise and train fighter pilots against other naval aviators but also contest their skills against USAF pilots in joint exercises. Similarly, USAF crews not only duel one another but also the Air National Guard. And while it might appear to be a one sided affair matching full time professional Air Force pilots against part time Air National Guard pilots, this is not always true. For a large percentage of Air National Guard pilots fly for airlines and are outstanding aviators.

MILITARY OPERATIONS

Nearly every base has a wide variety of channels associated with weather, dispatching, operations, maintenance and similar functions. Few of these frequencies are accessible through publications available to civilian interests. Information on verified channels is appreciated and will be included in later editions of the directory.

Military services use dedicated frequencies of 372.2 for (PTD) Pilot to Dispatcher and 344.6 for (PMSV) Pilot to Forecaster. Where bases are in close proximity, different channels are used to eliminate interference. Where channels 372.2 and/or 344.6 are assigned, the frequencies are omitted from our listings. Other PTD/PMSV channel assignments are listed.

In reviewing the directory you will note other common channels. SAC uses 311.0 or 321.0 for Command Post communications. Tactical Air Command employs 381.3 with the call sign "Raymond." Civil carriers flying under contract to military services and MAC transports utilize 130.65 for communicating directly with the base. Civil contract flights use the call sign "Log Air" in these radio contacts.

Nearly all air traffic communications operate in the AM mode. An exception will be found in monitoring Army communications. Tactical radios operating in the 30 through 60Mhz band use FM. Most scanners receive FM in this segment. Communications between 136Mhz and 142Mhz, above the VHF civil band, normally operate in the AM mode and you will find many listed here.

Coast Guard facilities use 381.8Mhz. In addition Coast Guard stations operate extensively on HF using single side band. You will find most of these USCG HF frequencies listed under military HF.

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Here are some abbreviations used in this listing:

CP	Command Post	AFRES	Air Force Reserve
PTD	Pilot to Dispatcher	PMSV	Pilot to Forecaster
Rng Ctl	Range Control	SOF	Supervisor of Flying
ARNG	Army National Guard	TAC	Tactical Air Command
AAF	Army Air Field	ANG	Air National Guard
ALCE	Airlift Command Element	SAC	Strategic Air Cmnd
MAC	Military Airlift Cmnd	Base Ops	Base Operations

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Alameda NAS, Ca

A/G HF	6723 USB
Tactical	150.375
Crash	140.10/140.30
Weapons	140.125
Opns	376.8

Altus AFB, Ok

MAC CP	249.4
SAC CP	311.0/321.0

Andrews AFB, Md

CP	141.55/378.1
AFRES	143.80/351.2
Mntnc	314.25/234.8

A P Hill AAF, Va (Wash. D.C.)

Ops	126.20/241.0
Rng Ctl	38.4

Barksdale AFB, La
- CP 311.0/321.0
- PMSV 373.1

Beale AFB, Ca
- CP 311.0/321.0
- PMSV 239.8

Beaufort MCAS, SC
- Base Ops 281.8
- PMSV 264.0

Bergstrom AFB, Tx
- CP Raymond 381.3
- CP Abbreviate 314.2
- Zest Opns 321.2
- Cmdr Net 150.175

Biggs AAF, Tx
- PTD 34.50

Bogue MCALF, N.C.
- GCA 324.8

Boise, Id
- NG Ops 41.5
- ANG Ops 298.7

Buckley ANGB, Co
- Range Ctl 253.625
- Beaver Dam 271.9

Butts AAF, Co
- PMSV 44.10
- Rng Ctl 253.625

Cairns AAF, Al
- Ops 347.50
- CP 127.95/242.1
- Ghostrider 41.30

Campbell AAF, Ky
- PTD 142.90
- ALCE 251.2
- Eagle Ctl 139.30/242.4

Camp Pendleton MCAS, Ca
- Rng Ctl 123.40/360.3
- Crash 140.525

Cannon AFB, NM
- CP Raymond 7 381.3

Carswell AFB, Tx
- Gen Dyn 284.1/292.5
- Gen Dyn 123.575
- PDT 376.0
- AFRES 252.1

Castle AFB, Ca
- CP 311.0/321.0
- Cmdr 148.065/149.565
  148.175/149.75
- Flgt Ops 127.30/163.5125
- PMSV 342.5
- Crash 173.5875/173.80

Cecil Field NAS, Fl
- Base Ops 361.9
- PMSV 317.0

Charleston AFB, SC
- CP 130.65/349.4

Cherry Point MCAS, NC
- Base Ops 306.6

Chicago O'Hare, Il
- 928 TAG 252.1
- ANG 384.9

China Lake NWC, Ca
- PMSV 353.0
- Crash 141.10
- Range Ctl 32.46/140.275
  141.425

Colorado Springs, Co
- AFRES 298.45
- PMSV 342.5

Corpus Christi NAS, Tx
- Base Ops 348.6
- Army Ops 49.7
  139.2/386.6

Dallas NAS, Tx
- ANG Ops 300.75
- Helio Ops 46.8/242.6
- Army Ops 34.7
- PMSV 263.5

Dannelly Field, Al
- NG Ops 40.3
- ANG Ops 286.5

Davis Monthan AFB, Az
- CP Raymond 296.2
- Ops 304.8

Davison AAF, Va
- NG Ops 52.75
- PMSV 139.40

Dobbins AFB, Ga
- CP Dapper Dan 381.3
- ARNG Ops 47.0
- Navy Ops 340.2
- PMSV 342.5

Dover AFB, Dl
- CP 130.65/349.4
- PMSV 342.5

Duluth Intnl, Mn
- Base Ops 288.90
- HF 6897 LSB

Dyess AFB, Tx
- CP MAC 349.4

Edwards AFB, Ca
- CP Conform 304.0
- Army 141.10/339.9
- Base Ops 148.05/148.10
- Shuttle 296.8/259.4

Eglin AFB, Fl
- CP TAC 372.8/381.3
- 390.9
- PMSV 342.5

Ellsworth AFB, SD
- PMSV 375.2

El Toro MCAS, Ca
- PTD 328.1
- Flt Ops 140.425
- Rescue 149.415

England AFB, La
- CP 381.3
- SOF 280.5
- PMSV 239.8

Fairchild AFB, Wn
- ANG 396.9
- PMSV 375.2

Fallon NAS, Nv
- Desert Ctl 263.6
- Desert Data 310.6
- PMSV 324.8
- Opns 138.72/139.545
- 140.04/142.575

Felker AAF, Va
- Ops 38.40

Forbes Field ANGB, Ks
- ANG Ops 286.5
- NG 41.70/304.6

Ft Wayne, In
- CP Mace Ctl 289.3

Fresno Air Terminal, Ca
- ANG Ops 298.3
- NG Ops 30.50/255.8
- 132.0/255.8

Fritzsche AAF, Ca
- OPS 123.05/130.05
- Crash 412.875/407.475
- Rng Ctl 32.25/32.75
- NG 139.70/141.80

Gen Mitchell Fld, Wi
- ANG Ops 139.50/351.2
- CP Instigator 376.1

George AFB, Ca
- CP Raymond 381.3
- Crash 173.5875
- Rng Ops 148.185/148.20
- 150.35

Glenview NAS, Il
- Ops 123.45
- USCG 381.8
- USCG HF SSB 5692/8980

Gray AAF, Wa
- Ops 32.30
- PMSV 38.90/342.5

Grayling AAF, Mi
- Ops 41.90
- Rng Ctl 41.80

Greater Wilmington, De
- CP Seabee 343.0
- NG Ops 46.90

Grissom AFB, In
- 434 TFW Ops 354.2

Greater Pittsburg, Pa
- Tanker Ctl 303.0
- Fgtr Ops 36.35/293.7
- 911 TAG (Trice) 252.1
- Ramp Ctl 131.37

Griffis AFB, NY
- Cmdr Net 149.565

Hamilton AAF, Ca
- Marathon Market 34.50
- Crash 150.425/149.70
- 179.90
- Ops 41.50

Hill AFB, Ut
- 419 Ops 252.1
- 419 CP Raymond 381.3
- Clover Ctl 339.0

Holloman AFB, NM
- CP Raymond 381.3
- Army Aviation 229.3
- Cherokee 294.6

Homestead AFB, Fl
- CP Raymond 381.3
- SOF 280.5
- 301 ARRS 252.8
- 93 TFS 364.0

Hood AAF, Tx
- Flt Flw 133.85/357.9
- Rng Ctl 30.45/38.30

Hunter AAF, Ga
- USCG 5692 USB 381.8
- NG Ops 126.25

Hunter-Liggett AHP, Ca
- Rng Ctl 41.05
- Ops 38.80
- Crash 146.20/412.875
- 407.475
- Rng Ctl 41.05/138.025
- 138.10/138.175
- 139.00/139.10
- 140.00/140.975
- 141.35/141.40

Jacksonville NAS, Fl
- Ops 310.2

Keesler AFB, Ms
- MAC 349.4
- Med Evac 236.6
- 7 ACCS 283.7
- AFRES 385.9/381.0

Kelley AFB, Tx
- AFRES 143.80/252.1

Key Field, Ms
- CP (HF 8989) 292.3

Key West NAS, Fl
- Ops 338.0

Kingsley Field, Or
- CP Killer Ops 288.9

Laguna AAF, Az
- Rng Ctl 119.00/248.4

Lakefront New Orleans, La
- NG Ops 40.90/241.0

Lakehurst NAEC, NJ
- Army Ops 255.7

Lambert St Louis, Mo
- ANG Ops 297.1

Langley AFB, Va
- CP 344.8/387.45
- NASA Ops 314.7

Laurence Hanscom Field, Ma
- CP 397.1

Lawson AAF, Ga
- Base Ops 128.15/372.2
- 317 TAW 141.80/340.8

Lemoore NAS, Ca
- Data Link 323.5
- Base Ops 299.3
- Crash 138.75/140.35

Libby AAF, Az
- Ops 128.25

Lincoln, Ne
- ANG Ops 236.85
- NG Ops 38.80/123.075

Little Rock AFB, Ar
- CP 349.4
- PMSV 239.8

Loring AFB, Me
- CP 311.0/321.0
- PMSV 342.5
- Cmdr Net 148.075/148.525

Los Alamitos AAF, Ca
- Ops 126.20/237.2
- Army Ops 30.10/139.05/230.9
- Guard Ops 65.05/149.80
- Crash 143.05

Los Angeles Intnl, Ca
- Orbit Ops 372.2
- USCG Ops 381.1
- USCG 383.9

McArthur, NY
- Army Ops 41.00/241.0

Madison, Wi
- ANG Ops 392.2
- NG Ops 40.80/123.40

Mackall AAF, NC
- Rng Ctl 38.9/139.35/246.0
- Ops 39.95/141.4

Malmstrom AFB, Mt
- CP 311.0/321.0

Mansfield, Oh
- CP 297.5

March AFB, Ca
- AFRES Ops 252.1/293.7
- Crash 150.345/141.30
- SAC Ops 139.875/143.825

Marshall AAF, Ks
- Ops 30.30
- PMSV 375.2

Mather AFB, Ca
- CP 311.0/321.0
- Darr Control 351.2
- Sparton Ctl 41.00
- Base Ops 165.412
- Crash 173.5875

Maxwell AFB, Al
- Dog Ops 396.9
- PMSV 342.5
- PTD 122.85/372.2

Martin State, Md
- Colt Control 347.2
- Witch Ops 385.9

McChord AFB, Wn
- CP 130.65
- PMSV 342.5

McClellan AFB, Ca
- CP Fosdick 377.8
  - Opns 349.4/358.3
- USCG 169.25/381.7
- HF 3123/5696/8984/11201
- Rscue Tac 413.15/413.35

McConnell AFB, Ks
- ANG Ops 301.6
- PMSV 375.2

McCoys AAF, Wi
- Rng Ctl 41.90/46.80
- Rng Ctl 124.60/247.4

McEntire ANGB, SC
- NG Ops 41.30/246.7
- PMSV 342.5

McGhee Tyson, Tn
- ANG Ops 143.80/303.0
- NG Ops 49.80/313.0

McGuire AFB, NJ
Ops 41.35/122.85/265.6
CP 130.65/319.4
Memphis International, Tn
ANG CP 138.10/341.6

Memphis NAS, Tn
Base Ops 274.5
Mercer County, NJ
NG Ops 41.00/121.95
Meridian NAS, Ms
PMSV 312.4
Michael AAF, Ut
Emergency 126.20/248.2
Rng Ctl 36.10
Minneapolis International, Mn
CP 133 TAW 314.2
CP 934 TAG 252.1
Minot AFB, ND
CP 311.0/321.0
PMSV 342.5
Miramar NAS, Ca
Data Link 305.1
PMSV 362.1
Ramp Ctl 140.10
Moffett NAS, Ca
ANG Ops 6715/139.70/390.0
Base Ops 251.7
Ctl 142.575
Crash 140.25
Sqdrn Ops 339.5/263.5
384.5/380.6
266.7/354.7
Moody AFB, Ga
CP Raymond 381.3
Moore AAF, Ma
Ops 46.95
PMSV 375.2
Mountain Home AFB, Id
CP 15091/381.3/292.2
Desert Data 310.6
Silver Bow 272.5/260.95
Muir AAF, Pa
NG Ops 41.50
Myrtle Beach AFB, SC
CP 343.0/381.3
Nashville Metro, Tn
ANG Ops 335.7
Mntnc 138.10
Nellis AFB, Nv
CP 381.3/320.0
MAC 257.35/259.95
Ctl 392.1/ 338.7/343.0
Blackjack 337.8

New Orleans NAS, La
USCG HF USB 3818/5696/8984
PMSV 265.8
Niagara Falls Intnl, NY
CP 914 TAG 340.8
Norfolk NAS, Va
Ops 268.8
Razz Base 385.1
MAC Term. 130.65/349.4
Brentwood Base 268.9
Red Hawk Base 283.1
Green Checker 284.5
Slug Ops 304.1
Bridgestone Base 345.1
E-2 Squadrons 349.8
Red Wolf Base 350.8
NARF Razz Base 385.1
Norton AFB, Ca
CP 130.65/349.4
Ramp Ctl 150.225
Oceana NAS, Va
Base Ops 284.9
Bedevilers VF-74 265.1
Starfighters VF-33 273.8
Gunfighters VF-101 311.5
Diamondbacks VF-102 339.5
Buckeye 353.2
Intruder Mntnc 274.4
PAR A C L S 322.0
A C L S 328.4
Opa Locka, Fl
USCG 123.10/381.8
Orlando Intnl, Fl
Army Ops 38.45/148.8
Otis ANGB, Ma
Army Ops 51.15/122.85
USCG Cape Air 381.8
HF 3123/5696/8984/11201
102 FIW Ops 262.0
Rng Ctl 38.50/36.60
Cmd Ctl 38.85/30.45
Skywatch 36.30/38.75/38.70
Patrick AFB, Fl
CP 138.30/383.0
Pease AFB, NH
AFREG Ops 287.3
Launch Truck 295.7
Tankers Primary 278.3
Tankers Sec. 251.8
Cmd Cntr 149.565
Bear Ops 138.00
Cmd Post Alert 413.45
Cmdr Net 149.575/148.20

Peoria, Il
CP Torch 34.15/286.5
Pensacola NAS, Fl
Victor Base 266.7
Sherman Ops 312.1
Phoenix, Az
ANG CP 311.0

Plattsburgh AFB, NY
Cmdr Net 148.075
149.565
149.575
Point Mugu NAS, Ca
Base Ops 267.5
Sqdrn Ops 30.55/143.715
Rng Ctl 140.340/140.445
140.520/140.940
HF 4735/5080/5180/6746
15077/23227
Pope AFB, NC
CP 130.65/319.4/340.8
Port Angeles CGAS, Wn
Ops 127.70/381.8
HF 21.82/2702/3120/5692/8980
Port Columbus, Oh
Army Ops 38.10

Portland International, Or
CP 288.9
AFRES 138.45/252.8
Port Astoria, Or
USCG 381.8
CG HF 5696/8984
Quonset State, Ri
CP Bacon 141.80/383.3
Raleigh Durham, NC
NG Ops 49.95
Randolph AFB, Tx
Unicom 123.30
PMSV 239.8
Rapid City Regional, SD
NG Ops 41.50/123.05
Camp Ripley
Rng Ctl 36.10
Reese AFB, Tx
T-37 Ops 287.6
T-38 Ops 289.1
Reno Cannon International, Nv
ANG Ops 280.0/280.5
ANG CP Caprock HF 4341/8780
Reno Stead, Nv
NG Ops 40.40/118.05
Rocky Ops 277.5

Richards Gebaur, Mo
442 TFW CP 252.1
303 SOF 227.8
Richmond International, Va
ANG Ops 289.3
NG Ops 40.40
Rickenbacker ANGB, Oh
907 TAG CP 252.1
160 NG Ops 286.2
166 NG Ops 311.3
Robert Gray AAF, Tx
Flt Ops 32.10/133.85/357.9
Rng Ctl 30.45/38.30
Robins AFB, Ga
CP Gunrunner 252.1
ALC Eagle Ctl 359.2
Rosecrans Memorial, Mo
ANG CP 349.4
Brady Ops 349.15
St Paul Downtown, Mn
Army Ops 41.50/139.20/299.1
NG Ops 49.65/126.20
St Petersburg-Clearwater, Fl
USCG 381.8
Salina, Ks
NG Ops 41.7/304.6
Salt Lake City, Ut
ANG Ops 303.0/311.0
Army Ops 32.90
Salt Lake Airport #2, Ut
NG Ops 48.80
Shaw AFB, SC
TAC CP Raymond 381.3
Seymore Johnson AFB, NC
TAC CP Raymond 381.3
TAC SOF Lion 280.5
Snohomish-Paine Field, Wn
Army Ops 34.10
Spokane Internatioinal, Wn
NG Ops 38.75/123.05
Springfield Regional, Mo
NG Ops 38.45/134.95/241.8
Stewart International, NY
Army Ops 49.75/139.10/321.7
Liberty 38.50/143.10/244.35
CP Polo 361.4
Stockton Metropolitan, Ca
NG Ops 49.00/242.4
Suffolk County, NY
ANG Ops 287.5
Syracuse International, NY
ANG Carnival 379.5
Army Ops 40.10

Tinker AFB, Ok
TAC CP 139.95/387.45
305.6/381.3
AFLC 382.6
MAC 138.15
Travis AFB, Ca
CP 130.65/141.9/349.4
PMSV 375.2
Tucson International, Az
ANG CP 392.2
Tulsa International, Ok
NG Ops 46.90
ANG Ops 383.0
Tyndall AFB, Fl
CP Raymond 286.7
Rng Ctl 262.3/291.8
296.1/257.0
Vandenberg AFB, Ca
CP 311.0/321.0
Rng Ctl 121.40/296.5/386.6
NASA Ops 164.200/165.612
Van Nuys, Ca
ANG Ops 303.0
Volk Field, Wi
Hardwood Rng 34.20/358.2
Sheboygan Rng 260.4
Washington County, Md
ANG Ops 32.30
Western Space & Missle Control
Frontier 121.40/296.5/386.6
Westover AFB, Ma
439 TAW CP 252.1
Wheeler Sack AAF, NY
Ops 38.30
Rng Ctl 38.50
Whidbey Island, Wn
PMSV 350.0
Whiteman AFB, Mo
CP 311.0/321.0
NG Ops 41.00
Whiting NAS, Fl
Ops 253.1
Willow Grove NAS, Pa
AFRES 351.2
ANG Ops 46.85/343.0
Will Rogers World, Ok
CP 319.4
W. K. Kellogg Regional, Mi
ANG Ops 32.35/267.8
Wright AAF, Ga
Ops 38.70
Wright Patterson AFB, Oh
CP Kittyhawk 397.0
Wursmith AFB, Mi
CP 321.0
Yeager, WV
ANG CP 283.8
Yuma MCAS, Az
CP 337.9
Target 337.9
Youngstown Municipal, Oh
CP Battlestar 384.7

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Compiled by Robert Kelty, Editor of Military Radio Systems, this listing of tactical and squadron frequencies is used in the Southern California.

Top Gun Base	262.7	Top Gun Tac	332.35
Happy Hunter	255.3	Hassle Base	311.8
ACMR War Wag	278.2		

Navy Squadron Frequencies

Call Sign	Frequency	Call Sign	Frequency
Wichita	262.7	Bullet	291.3
Vandy	265.7	Saint	354.7
Screaming Eagle	284.5	Old Nick	250.2
Aardvark	239.7	Gunslinger	253.1
Bandit	275.5	Black Lion	250.2
Inferno	344.4	Stallion	339.5
Renegade	322.1	Nickel	361.8

MILITARY HF RADIO FREQUENCIES

This is not a complete listing of military HF frequencies.

Military Airlift Command HF SSB Channels and Bases

4746	McDill AFB	5710	Albrook AFB
6730	Andrews AFB	6673	Andrews AFB
6683	Albrook AFB	6750	McDill AFB
6738*	Yokota AB	6761	Tactical
8039	McClellan AFB	8993	Albrook AFB
8893	McDill AFB	8950	McClellan AFB
8989	McClellan AFB	8993	Albrook AB
9007	Andrews	9014	Scott AFB
9029	McDill AFB	9320	McClellan AFB
11035	Andrews AFB	11176	Albrook AB
11180	Andrews AFB	11182	Scott AFB
11236	Yokota Japan	11239	McClellan AFB
11246	McDill AFB	11288	McDill AFB
11413	McClellan AFB	13244	McDill AFB
13440	Andrews AFB	13445	Andrews AFB
15015	Albrook AB	15031	McClellan AFB
18002	McClellan AFB	18019	Albrook

* In addition to Yokota AB Japan, stations at Elemendorf AFB, Alaska and Anderson AB, Guam have been monitored on 6738. You may hear several Air Force Bases on the same channel, although we have listed but one.

USB SAC Frequencies

4495	4725	5026	6738*	6761	6826
9023	9027	9057	11220	11243	11494
13241	14955	15041	15962	17975	18046
18594	20631	20890	23337		

Various ground station identifications can be monitored on these SAC channels ranging from Dragnet to Sky King. IDs are changed often.

Other Air Force HF Channels

3113	3295	3369	5684	5700	5987
8101	11408	13211	13907	15035	15091

Navy/Coast Guard HF Channels

3120	3123	4735	5692	5696	6715
6723	6746	8765.4	8927	8964	8980
8984	11195	11198	11201	15077	15081
15084	21820	23277			

Among these channels 5696 is very active.

Search and rescue operations were monitored on 8927 involving U.S. Navy aircraft and Naha AB, Okinawa.

WORLD AERONAUTICAL RADIO STATIONS HF

UNITED STATES

San Francisco	2869	3413	5547*	5574*	8843*
	10057*	11282*	13261	13354*	17904
New York	3016	5598*	8846*	11396*	13306*
	2887	5550*	6577*	8825*	13297
	2899	5616*	8864	13291*	17946
Houston		10075*	13330*		

CANADA

Cambridge Bay	2971	4675	8891*	11279*	13291
	17946				
Churchill	2971	4675	8891*	11279*	13291
	17946				
Frobisher Bay	2971	4575	8891	11279	13291
Gander	2899	5616*	8864	13291	17946
	2962	5649	8879	13306	
	2971	4675*	8891	11279	13291
	3016	5598	8846	13306	

MEXICO

Mazatlan	2966	5568	10017		
Merida	2887	5550	6577*	8918	11396
	13297	17907			
Mexico City	3116	3404	3460	5533	5617
	5666	6589			

PACIFIC

Auckland	3467	5643*	8867*	13273	17904
Biak	2998	4666	6532	6562	8903
	11384	13300	17904		
Cocos Isl.	3476	5634	8879	11306	17961
	3470	6556	10066	11396	13318
	17907				
Darwin	3470	6556	10066	11396	13318
	17907				
Djarkarta	3470	6556*	8957*	10066	11396
	13318	17907			
Nandi	3647*	5643*	8867	13273	17904
Honolulu	2998*	5628*	5547*	5574*	8843*
	11282*	11384	13261	13354*	17904
	6543	6655*	8951*	13273*	13300*
	3467	5643*	6640*	8867*	10048*
Perth	3470	6556*	10066	11396	13318
	3476	5634	8879	11306	17907
	17961				

Port Moresby	2998	4666	6532	6562	8903
	11384	13300	17904		
Sydney	3467	5643*	8867*	13273	17904
	3470	6556	10066	11396	13318
Tahiti	3467	5643*	8867*	13273	17904
Wake Island	2998	4666	6532	6562	8903
	11384	13300	17904		

EAST ASIA

Bangkok	3470	6556	10066	11396	13318
	3485	5649	5655	8942*	11396
	13309	17907			
Calcutta	3470	6556	10066	11396	13318
Colombo	3470	6556	10066	11396	13318
Hong Kong	3485	5649	5655	8942*	11396
	2998	4666	6532	6562	6655
	8903*	11384	13300	13309	17904
Madras	3470	6556	10066	11396	13318
Manila	2998	3470	3485	4666	5649
	5655	6532*	6556	6562	8903*
	8942*	10066	11384	11396	13300
	13309	13318	17904		
Naha	2998	4666	6532*	6562	8903*
	11384	13300	17904		
Seoul	2932	5628	10048	13294	17904
	2998	4666	6532	6562	8903
			8942	11384	13300
	3016	6571	8897	10042	13297
Singapore	3485	5649	5655*	8942*	11396
	13309	17907			
	3470	6556	10066	11396	13318
Tokyo	2998*	4666*	6532*	6562	8903*
	11384	13300*	17904	6655*	8951*
	2932	5628*	10048*	13273*	13294

CHINA

Bejing	3016	6571	8897	10042	13297
	2932	5628	10048	13294	17904
Kunming	3016	6571	8897	10042	13297
	3470	6556	10066	11396	13318
Lanchou	3016	6571	8897	10042	13297
Canton	3016	6571	8897	10042	13297
	3470	6556	10066	11396	13318
Shanghai	3016	6571	8897	10042	13297
	2998	4666	6532	6562	8903
	2932	5628	10048	11384	13300
Ulan Bator	3016	6571	8897	10042	13297
	3485	5649	5655	8942	11396
	5664	10039	13309	17907	

USSR

Barnaul	2851	4678	6592	10096	17958
Chulman	3004	5664	10039	13303	17958
Irkutsk	3016	6571	8897	10042	13297
	3485	5649	5655	8942	11396
	3004	5664	10039	13303	13309
Khanty Maksivsk	3019	5646	13315	17958	
Khanty Mansivsk	2851	4678	6592	10096	17958
Kharbarovsk	3004	5664	10039	13303	17958
	2932	5628	10048	13294	17904
Kurensk	2851	4678	6592	10096	17958
	3004	5664	10039	13303	
Kuybyshev	4669	6631	8951	11375	17961
Lenningrad	3479	5661	6598	10084	13288
Moscow	3019	5646	13315	17958	17961
	2944	4669	6631	8951	11375
	3479	5661	6598	10084	13288
Murmansk	3479	5661	6598	10084	13288
Odessa	2992	5667	8918	13312	13288
	3479	5661	6598	10084	17961
Urumchi	3016	6571	8897	10042	13297

MIDDLE EAST

Abadan	3467	5658	10018	11300	13288
	17961				
Ankara	2992	5667	8918	13312	
Bagdad	2992	5667	8918	13312	
Bahrain	3467	5658	10018	11300	13288
	2992	5667	8918	13312	17961
Jeddah	2992	3467	5658	5667	8918
	10018	11300	13288	13312	17961
Tehran	2992	3467	5658	5667	8918
	10018	11300	13288	13312	17961

AFRICA

Abidjan	3452	6535	8861	13357	17955
Accra	2878	5493	8903	13294	17961
Addis Ababa	3467	5658	10018	11300	13288
Algiers	3419	5652	8894	13273	17961
Casablanca	3452	6535	8861	13357	17955
Cairo	3467	5658	10018	11300	13288
	2992	5667	8918	13312	17961
Dakar	3452	6535*	8861*	13357	17955
Johannesburg	5532	8933*	11354	13300	17925
Kano	2878	5493	8903	13294	17961
	3419	5652	8894	13273	
Narobi	3476	5634	8879	11306	17961
	3467	5658	10018	11300	13288
Harare	3476	5634	8879	11306	17961
Tripoli	3467	5658	10018	11300	13288

EUROPE

Bodo	4675	8891	11279	13291	
Berne	3010	4654	6643	8936	10069
	13205	15046	18023	21988	23285
Lisbon	3016	5598	8825	13306	
London	5535*	8921	10072*	13333	17922
Portishead	4807	6854	8170	12133	16370
	4810	8185	12168	17405	18210
	19510	21765			
Stockholm	5541	8930	11345	13342	17916
	23210				
Shanwick	3016	5598	8825	13306	17946
	2899	5616*	8864*	8891*	13291
	2962	5649	8879	13306	
Gatwick	2971	4675	8891*	11279	13291

NORTH ATLANTIC

Sondrestrom	2971	4675	8891	11279	13291
	17946				
Reyjavik	2899	5616	8864	13291	17946
	2962	5649	8879	13306	

MID ATLANTIC

Santa Maria	2899	5616*	8861*	13291	17946
	3016	5598*	8664	8825	13306*
Canaries	3016	5598	8825	13306	17946

CARRIBEAN

Boyeros	2728	2887	3407	5215	5550
	5562	6577	7771	8876	8918
	11396	13297	13339		
Santiago	2728	2811	4451	5215	5562
	6708	7771	8876		
Port of Spain	5526	5550	5598	6577	8825
	8855	10096	11396	13297	
San Juan	2887	5550*	6577*	8918	11396
	3016	5598*	8825	13297	13306*

CENTRAL AMERICA

El Salvadore	5619	6567	10021		
Panama	2944	6577*	6649	8918*	11396
San Andres	2887	6577	8846	8918	
Teguicigalpa	2887	5550	6577	8918	11396
	13297				

SOUTH AMERICA

Antofagasta	4469	6649	10024		
Asuncion	3479	5526	8855	10096	17907
	2944	4669	6649	10024	11360
Barranquilla	2887	6577	8918		
Belem	3479	5526	8855	10096	
Bogota	6649	8855	10024	10096	13297
Brazilia	3479	5526	8855	10096	
Buenos Ares	2944	3479	5526	6649	8855
	10024	10096	11360	17907	
Campo Grande	3479	5526	8855	10096	
Cayenne	5526	5550	8855	8918	
Cmdr Rivadavia	2965	5547	11282		
Cordoba	2944	6649	10024		
Guyaquil	4669	6649	10024		
La Paz	3479	5526	6649	8855	10024
	10096				
Leticia	8855	10096			
Lima	6649	10024	11306*		
Maiquetta	5526	5550	6577	8855	8918
	10096	13297			
Mendoza	2944	6649	10024		
Manaus	3479	5526	8855	10096	
Metro	6603	13352			
Montevideo	3479	5526	8855	10096	17907
Palegre	3479	5526	8855	10096	
Paramaribo	3016	5526	5550	6577	8825
	8855	8918	10096	17907	
Pascua	4469	5643	6649	8867	10024
	13300				
Porto Velho	3479	5526	8855	10096	
Puerto Montt	4669	6649	10024		
Punta Arenas	4469	6649	10024		
Recife	3452	5565	8855	8861	10096
	13357				
Resistencia	2944	6649	10024		
Rio De Janeiro	3452	8861			
Salta	2944	6649	10024		
Salvador	3452	5565	8855	8861	10096
Santa Cruz	2944	3479	4669	5526	6649
	8855	10024	10096	11360	13297
Santa Rosa	2966	5547	10081		
Santiago (Chile)		4669	6649	10024	

* These stations were monitored in Colorado between 9/1/87 and 3/1/89 using an indoor long wire antenna on the ICOM R-71A.

Only Lima has been identified in South America. All other South American radio facilities communicate in Spanish.

You may hear controllers in Dakar and Tahati respond in English or French. These HF radios are operated by air traffic controllers. Other HF channels use radio operators relaying ATC clearances.

ALBUQUERQUE CENTER

Alamogordo
132.65/257.6

Amarillo
127.85/351.17
135.42/261.5
134.75/381.6

Animas
129.95/285.5
133.00/281.5

Carlsbad
132.55/343.6

Childs Peak
126.45/288.3
125.25/307.3
132.45/371.9
135.15/350.2

Clines Corner
132.80/299.3

El Paso
128.20/285.5
132.55/343.6
133.27/270.3
134.45/278.3

Ft Stockton
132.55/343.6
134.45/278.3
132.20/274.6

Globe
125.40/269.3
133.85/290.3
119.62/258.3
132.35/353.9
124.50/306.2
135.72/339.8
338.3

Guadalupe
132.20/274.6

Humbolt Peak
267.9

Mesa Rica
135.05/363.2

Mt Dora
127.85/351.7
133.05/319.9

Prescott
128.45/298.9
135.32/370.9
132/0/312/0

Raton
132.80/299.3

Roswell
132.65/257.6

Sandia Mtn
132.80/299.3

Teuque Peak
132.80/299.3

Truth or Consequences
128.20/285.5

Tucson
127.95/351.8
133.00/281.5
273.6

Tucumcari
132.75/319.2
133.55/279.6
135.70/251.1

West Mesa
125.20/307.2
133.65/284.6
135.05/363.2

Winslow
128.45/298.9
132.90/312.0

Zuni
125.20/307.2
134.60/287.9
135.80/343.9

HONOLULU CERAP

Kokee, Kauai
119.90/306.9

Mt Kaala, Oahu
126.50/269.4
135.40/327.1

Mt. Haleakala, Maui
119.30/307.1
124.10/317.5
124.60/291.6
126.00/278.3

Hamakua, Hi
126.60/284.6

ANCHORAGE CENTER

Anchorage
119.70/269.0
125.70/379.1
132.30/306.2

Annette Island
118.50/284.6

Barrow
135.30/385.6

Barter Island
120.6

Beaver Creek
127.10/323.0

Bethel
125.20/372.0

Bettles
124.60/352.0

Big Delta
135.30/322.5

Big Lake
118.20/254.3

Biorka Island
126.60/335.5

Boswell Bay
119.30

Cape Newenham
127.60/273.6

Cold Bay
118.50/278.3

Deadhorse
134.40/370.9

Ft Yukon
132.70/284.7
135.00/370.1

Galbraith
134.60

Galena
127.00/290.2

Gulkana
119.50/317.5
127.90/360.8

Gustavus
133.20/357.6

Homer
125.90/270.3
133.80/316.1

Iliamna
120.00

Kenai
119.70/269.0
125.70/379.1
123.90/273.45

King Salmon
124.80/354.0

Kodiak
125.10/281.4

Kotzebue
119.20/263.0

Lena Point
133.90

Level Island
118.00

McGrath
128.10/353.8

Middleton Island
133.60/269.4

Murphy Dome
120.90/319.2
133.10/285.4

Nome
133.30/290.4

Point Lay
118.90/282.2

Port Heiden
132.90

St Mary's
124.00

St Paul Island
127.80/338.3
119.10/339.8

Shemya
128.20/343.8
132.10/346.3

Sparrevohn
134.30/351.8

Talkeetna
133.70/279.6

Umiat
119.40

Yakutat
119.00/263.1

ATLANTA ARTC CENTER

Albermarle
133.15/251.1

Anniston
134.95/306.2

Athens
124.45/256.9
127.50/306.9
132.85/282.2

Atlanta
135.00/317.7

Augusta
128.10/323.0

Birmingham
133.5/261.5
135.60/316.1

Black Jack Mtn
127.05/370.9

Chattanooga
124.87/270.6
132.05/353.8
133.17/299.2
134.80/363.1

Crossville
125.92/236.7
133.60/254.3
132.67/279.5

Gadsen
133.80/353.7

Greensboro
132.75/343.8
128.80/379.2

Hampton
125.90/343.9
128.00/273.6
132.17/323.1
133.35/287.9

Hickory
125.15/263.0
132.97/307.8
134.55/290.2

Huntsville
133.97/380.2

Jonesville
128.75/257.9
132.62/289.1

Macon
133.10/348.7
123.95/269.3
126.42/353.9

Millen
135.55/352.4

Monroeville
118.55/267.9

Montgomery
120.55/319.1
126.40/351.9
132.07/290.5
134.60/308.6
280.1

Mount Airy
126.77/301.4

Mount Oglethorpe
118.90/307.9
121.35/360.6
290.8

Newport
127.55/269.5
134.07/236.5

Owing
132.42/269.1
133.70/327.0
135.35/322.4

Pine Level
290.5
335.6
369.9

Tri City
132.90/319.9
119.57/338.3

Uniontown
132.25/297.4
133.25/351.9
339.1
252.9
352.8

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Tactical Channels

Reviewing ARTC Center channels you may note some are listed as tactical or special use. These may be used in several different ways. For example ultra high altitude aircraft such as the U-2 and SR-71 may use the channel for communicating with ARTC Centers. Similarly, single piloted aircraft such as fighters can minimize channel changes by remaining on the tactical frequency.

BOSTON CENTER

Augusta
134.95/307.0

Barnstable
128.75/290.3
133.45/269.3
135.47/370.9
132.90/307.3
134.17/387.1
321.3

Berlin
135.70/282.2

Bucks Harbor
133.45/269.3
269.6

Calverton
134.55/397.85

Cambridge
135.32/360.6

Concord
134.70/381.4

Cummington
132.65/379.1

Gardner
123.75/338.2

Houlton
120.25/346.4
128.05/319.1

Huguenot
120.20/387.0

Kingston
133.10/256.9

Lake George
126.35/291.6
128.32/348.7
133.62/354.1

Lebanon
128.32/348.7
134.70/381.4

Melrose
135.55/370.95
127.65/393.1
119.25/281.5
134.30/353.7

Millinocket
128.05/319.1

Monticello
121.60

Mt Mansfield
135.70/282.2
120.35/380.3

Nashua
121.50/243.0
* HF 3.410
* HF 5.514

Pawling
121.50/243.0

Rockdale
133.25/279.5
134.27/388.8

Sayville
133.42/385.6

Shelton
125.57/343.8
128.10/351.7
132.30/306.3
134.00/317.7

South Acton
118.55/285.4
128.20/322.4

St Albans
124.25/269.6
120.25/346.4
128.05/319.1
321.3

Turin
133.25/279.5
123.87/323.0
120.35/380.3
135.25/377.1
321.3

Utica
132.42/381.65

Woodstock
124.85/269.2
121.35/398.9
135.32/360.6
123.95/307.9
118.42/277.4

* Used for helicopters off shore oil rigs.

Special Use 321.3

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Note HF channels listed for Nashua. These are the only published HF frequencies listed for the twenty ARTC Centers located in the U.S. We must assume they were established to provide extended range beyond that of VHF and UHF facilities.

CHICAGO ARTC CENTER

Aurora, Il
123.75/354.0
135.15/301.5
* 133.50/379.1

Bradford, Il
124.55/398.9
127.95/353.5
133.82/291.6

Burlington, Ia
135.60/316.1

Cedar Rapids, Ia
132.80/261.5

Chicago Heights, Il
132.95/272.7

Danville, Il
127.45/397.9

Dells, Wi
125.60/307.1
133.60/269.4

Des Moines, Ia
127.05/319.8

Des Plaines, Il
120.35/317.4
128.65/298.9
133.20/360.8

Downers Grove, Il
127.60/338.3
** 364.8

Dubuque, Ia
127.00/351.8
132.72/343.6
133.95/281.4
135.27/285.5

Ft Wayne, In
119.85/362.3
132.15/269.1

Gary, In
125.20/323.2
127.80/385.5
133.70/387.1
* 133.10/285.6

Goshen, In
127.55/263.1
133.90
135.90/317.6

Grand Rapids, Mi
134.95/287.9
135.65/319.1

Hampshire, Il
127.10/380.3
128.05/381.4
134.20/348.7

Horicon, Wi
127.50/306.3
132.22/327.8
133.32/263.0
135.55/343.9

* Used by O'Hare Approach Control
** Military Spl Use

Jones, Mi
125.97/254.3
128.20/379.1
133.42/343.7

Milford, Il
125.05/284.7
132.50/353.8
135.75/377.2

Milawukee, Wi
125.10/323.1
132.30/360.6
134.75/291.7
** 364.8

Moline, Il
118.75/351.7

Muskegon, Mi
126.25/285.4

Ottumwa, Ia
121.40/354.1

Pullman, Mi
128.50/269.6

Rockford, Il
133.00/379.2
135.97/381.6

South Bend, In
127.62/273.6

Washington, Ia
133.35/297.4
134.32/239.3
135.82/385.6

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Note Chicago Center frequencies of 133.50/379.1 at Aurora and 133.10/285.6 at Gary are used by O'Hare approach control. There may be several reasons for these center channels being assigned to O'Hare. For one, it would provide extended radio coverage. Similarly, O'Hare may not have equipment for these channels at local sites. This is an unusual arrangement.

CLEVELAND ARTC CENTER

Algonac
132.25/269.2
134.30/380.6
354.0

Belmont
120.40/379.1
132.45/281.5
135.17/291.6

Blue Knob
121.20/299.2
124.40/327.1
128.45/307.1
132.07/353.8

Bradford
128.65/338.3

Carleton
119.95/269.5
134.77/354.1

Chardon
127.50/306.3

Detroit
127.67/319.9

Dunkirk
125.20/263.1

Findlay
127.90/269.3
126.97/288.3

Flint
126.75/335.6

Holland
133.95/353.7
135.77/284.6

Litchfield
120.45/360.7
134.65/343.8
135.72/277.4

Mansfield
120.60/307.2
134.90/317.7
133.37/350.2

Moon Township
133.07/236.1
134.47/227.8

Morgantown
125.10/239.3

Paris
128.15/348.7

Saginaw
127.70/307.8
133.87/351.9

Sandusky
125.60/363.0
135.10/327.0
133.52/261.5

Warren
121.40/317.4
132.92/267.3
134.12/316.1
135.60/363.1

Waterford
132.40/323.2

Waterville
123.90/379.2

Wayland
128.25/335.5
133.75/239.35

++

Grand Canyon Flight

The day had dawned bright and clear for our flight from Salt Lake City to Phoenix. The flight had been smooth and pleasurable as we approached the north rim of the Grand Canyon. I had been monitoring the fuel pressure gage knowing the tank I was using was about to run dry. When the needle began to fluctuate, it was time to change tanks. But now my attention was diverted totally, almost hypnotically, as we focused on the beautiful scene that lay below us - the Grand Canyon in all its splendor. Then without warning the reassuring purr of the engine became earily quiet as the fuel tank went dry. Although we had been several thousand feet above the north rim of the canyon, we lacked enough altitude to glide to either side. Perhaps no more than fifteen seconds were needed to retard the throttle to idle, change fuel tanks and bring up the power as the new tank brought the engine back to life. Yet it was one of the most frightening moments in my entire life.

DENVER CENTER

Akron, Co
125.95/272.2
135.75/319.2

Alamosa, Co
134.15/343.7

Aspen, Co
128.50/327.8
132.85/306.9

Casper, Wy
133.00/281.5
135.60/239.0
134.65/322.5

Cherokee, Wy
133.00/281.5
135.60/239.0

Cheyenne, Wy
124.80/284.7
127.55/307.1
133.00/281.5
134.20/350.3
135.60/239.0

Colby, Ks
127.65/379.9
132.17/306.3

Crawford, Ne
135.02/257.9
127.20/338.2

Denver, Co
124.10/290.2
125.95/272.7
126.50/285.5
128.20/357.6
128.65/282.2
132.85/306.9
133.75/322.2

Eastonville, Co
125.80/323.1

Farmington, NM
134.15/343.7
132.10/386.8
135.47/290.4

Goodland, Ks
132.50/353.7

Grand Island, Ne
132.70/269.6

Grand Mesa, Co
127.80/307.9
134.27/275.3
135.12/327.0
135.65/269.1
128.50

Gunnison, Co
127.80/307.9
133.52/319.0

Hanksville, Ut
135.37/303.6

Hayden, Co
128.50/327.8
135.20/257.6

Hayes Center, Ne
135.50/335.6

La Junta, Co
126.60/317.5
128.70/343.8
132.22/335.5

Longmont, Co
124.80/284.7

Lusk, Wy
133.00/281.5
135.60/239.0

Natoma, Ks
132.50/353.7

Medicine Bow,
126.50/285.5
133.00/281.5
134.20/350.3
135.60/239.0

Ogallala, Ne
132.70/269.6
134.40/240.3

O'Neil, Ne
132.70/269.6
135.05/257.9

Pueblo, Co
126.60/317.5
133.85/323.3
135.40/348.7

Rapid City, SD
127.20/338.2
134.65/322.5

Sundance, Wy
133.00/281.5
135.60/239.0

Tuba City, Az
132.10/386.8
134.15/343.7

Tactical
Spl Use
296.7
381.4

FT WORTH ARTC CENTER

Abilene
127.45/269.4
282.2
317.7

Ardmore
128.10/322.4
132.95/270.0

Big Spring
133.70/350.2

Blue Ridge
127.60/254.3
132.85/397.9
134.15/377.1

Brownwood
127.45/269.4
346.3

Clinton-Sherman
128.40/290.2
132.45/363.1

Dublin
127.15/353.7
134.25/289.8
128.32/351.9

El Dorado
128.20/269.1

Ft Worth ARTCC
134.40/380.3
132.42/357.6

Frankston
135.25/265.1

Hobbs
133.10/385.6

Keller (Ft Worth)
124.70/323.2
126.00/317.4
127.00/360.6
134.15/377.1
364.8

Lubbock
127.70/362.3
133.35/327.1
276.0
291.1
286.6
295.9

Marshall
128.70/269.2
327.8

Mc Alester
127.30/278.3
135.45/387.0
288.3

Midland
133.10/385.6
133.95/269.0
364.8

Monroe
135.10/271.2

Oklahoma City
132.45/363.1
133.90/298.9

Paducah
126.45/316.1
127.90/319.8
134.55/354.0
339.1

Paris
124.80

Plainview
126.45/316.1

San Angelo
126.15/295.0

Scurry
127.95/287.9
135.75/363.2
133.50/282.3

Shreveport
132.27/236.5
133.87/307.9
135.10/271.2
364.8

Texarkana
124.80/381.4
132.42/357.6
134.47/284.6

Tulsa
127.30/278.3
364.8

Waco
133.30/269.5

Wichita Falls
133.25/278.5
134.55/354.0
127.90/319.8
135.60/360.7
364.8
391.2
384.9
296.0

++

Years ago before airlines hired women pilots, an enchanting female voice came over the radio with "Salt Lake Approach Western 406 leaving flight level two zero zero for one one thousand with Kilo." The transmission had obviously came from a well coached female flight attendant. Responding the controller remarked "Western 406 ident, turn left heading zero seven zero for radar vector to a visual approach runway one six right." Then from the aircraft came a deep male voice with "Western 406 roger." With no hint of humor in his reply the controller immediately added "Western 406 you sound much better since you loosened your seatbelt!"

HOUSTON ARTC CENTER

Alexandria
128.55/343.9
132.70/317.5
288.1
321.3

Austin
127.35/353.8
132.72/290.5

Beamount
133.80/351.8

Brownsville
134.70/263.1

Cameron County
132.65

College Station
120.40/394.1
125.15/338.3
126.75/307.1

Fredericksburg
134.20/307.3
135.92/385.4

Ft Stockton
125.75/346.1

Galveston
133.80/351.8
133.40/306.3

Grand Isle
128.10/360.8
133.85/269.5
(Oceanic) 321.3

Hattiesburg
119.72/285.6
126.80/281.5

Houma
132.65

Houston
134.35/269.0
321.3

Intracoastal City
120.35
(Oceanic)

Kingsville
128.30/291.6
133.75/281.5

Lacombe
124.10/323.2
126.00/381.5

Lafayette
127.90/380.2
133.65/263.1

Lake Charles
126.40/381.6
132.95/353.9

Laredo
127.80/307.2
128.60/319.1
132.50/323.1
295.7

Lometa
132.35/343.9

Lufkin
126.95/343.6
134.80/269.6

Mobile
126.60/279.6
128.75/291.6
132.60/322.4
277.4

Natchez
125.75/291.7

New Orleans
127.00/385.5
127.90/380.2
124.10/381.5
126.00/323.2
321.3

Newton
128.55/343.9
133.02/225.1

Palacios
127.05/279.6
128.00/306.9

Rockport
128.15/281.9
132.25/319.8
134.60/322.5
135.05/353.6

Rock Springs
125.75/346.4
132.40/380.2
322.7
267.9

San Antonio
132.15/299.2
134.60/322.5
125.25/291.7
132.80/343.7
134.95/285.4
135.65/379.2
304.8
321.3
264.7
301.4

Sealy
127.05/279.6
128.00/306.9

Uvalde
128.40/327.0
134.95/285.4

Vermilion
120.35
(Oceanic)

INDIANAPOLIS ARTC CENTER

Brookville
132.70/307.9
135.12/282.3
135.80/351.8

Damascus
124.57/335.6

Evansville
128.30/363.0
132.52/379.9

Henryville
128.55/269.4
133.05/278.5
134.27/352.0

Indianapolis
119.55/251.1
124.52/319.8
132.77/385.4
128.37/290.3
321.3

London, Ky
125.25/246.0
132.80/253.5

London, Oh
124.80/380.2
127.77/346.3
134.00/290.5

Marietta
125.55/398.9

Marmet
127.40/269.6
132.32/385.6
134.22/307.3
128.40/381.6

Merwyn
132.60/281.5
135.57/239.25
321.3

New Hope
125.65/372.0
128.07/261.5

Portsmouth
127.10/290.4
135.70/363.2

Rosewood
134.70/269.0

Rossville
128.80/378.8
134.60/319.2

Terre Haute
132.20/307.1
134.17/270.3

Winchester
127.00/285.4
128.22/278.3
133.92/387.0

Zanesville
124.45/370.9
126.35/353.5
132.82/343.6
133.77/288.1

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Positions of operation in the Center are divided into geographical areas and stratified into low, high and sometimes super high sectors.

Centers may have thirty sectors or more with each sector normally staffed with three controllers. One monitors the radar display and operates the radio. This individual controls the aircraft. Another controller operates the intercom/telephone console and coordinates data, altitudes, routes and similar information between sectors. The flight data assistant takes care of the paper work. Here is an example of staffing for one shift.

1	Manager	30	Radar Controllers
8	Team Supervisors	30	Manual Controllers
1	Flow Controller	30	Flight Data Specialists
1	Military Liaison Specialist	5	Data System Specialists

The military liaison specialist coordinates special military activities planned for the particular shift and a meterologist provides controllers with information and advice on weather conditions affecting air traffic. Center staffing during peak traffic ranges from 100 to 150 individuals.

JACKSONVILLE ARTC CENTER

Albany
125.75/226.8
359.0

Brooksville
135.75/377.2
128.05/343.9

Charleston
124.07/317.7
127.95/379.1
132.47/288.2
133.62/269.6
135.05

Columbia
124.70/298.9
127.87/319.2
335.5

Crestview
120.20/346.4
134.15/338.3
135.40/350.2

Daytona Beach
134.00/263.0

Dothan
134.30/353.5
288.3

Florence
133.40/306.3
134.35/321.4

Gainesville
127.60/278.3
134.40/385.6
135.65/291.7

Glenco
126.75/277.4

Jacksonville
134.85/327.1
135.25

Millen
132.50/363.2

Myrtle Beach
128.70/343.6
135.05/317.4
381.4

Ocala
118.60

Orlando
127.55/360.6

Panama City
127.45/251.1

Perry Foley
127.80/352.0

St Augustine
119.77/236.7
125.45
126.35/317.5
132.82/288.1

Savannah
120.85/322.5
134.45/281.5

Tallahassee
123.72/307.2
125.05/360.8
364.8

Valdosta
125.95/379.2
348.3
363.0

Waycross
132.30/290.4
133.30/346.3
135.97/282.3

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The Experimental Aircraft Association (EAA) fly in at Oshkosh, Wisconsin is to air shows what the Super Bowl is to football. Lasting several days, it is an annual event scheduled for late July or early August. If you can attend, don't miss it!

By permission of Ken Winters, Editor and Publisher of D/FW Frequency List.

Oshkosh Approach Control	120.70
Oshkosh Tower North	118.50/257.6
Oshkosh Tower South	126.60
Warbirds Tower	121.40
N/S Runway Departure Flagman	118.90
International Aerobatic Club	461.325
Fire	154.19
Ambulance	155.235

KANSAS CITY ARTC CENTER

Anthony
118.35/344.8
133.20/263.1

Butler
125.55/327.0

Chillicothe
125.25/381.5

Columbia
118.40/299.2
134.50/350.2

Decatur
124.30/335.6

Edna
128.60/343.9

Effingham
133.22/346.4
135.05/290.4

Emporia
120.20/323.2
125.30/269.2
132.25/285.4

Farmington
132.65/307.8
134.42/319.0

Gage
126.95/379.2

Garden City
125.20/269.4
133.45/281.4

Hutchinson
118.80/337.4
134.30/273.6

Jacksonville
127.27/327.5

Kirksville
132.60/370.9
135.00/269.3

Liberal
134.00/290.8
134.67/387.1

Manhattan
127.35/388.8

Marion
125.30/269.5

Mt Vernon
127.70/317.7

Natoma
124.40/322.4
125.90/327.1
133.92/307.8
134.50/350.2

Oklahoma City
128.30/291.7

Olathe
119.65/285.6
134.70/279.5

Ponca City
127.80/319.1

Quincy
133.15/319.9
133.72/290.7

Richland
124.10/353.7
133.80/317.5

St Charles
121.25/269.6

St Joseph
127.90/251.1

St Louis
125.50/380.2

Salina
134.90/363.2

Sedalia
119.65/285.6

Springfield
127.50/269.4
132.90/290.5
135.17/277.4

Topeka
120.50/290.2
123.80/343.7
134.70/279.5

Tulsa
128.80/354.1
135.55/371.9

Vandalia
135.32/338.2

++

BACKUP POWER AND RADIO EQUIPMENT

Every military and FAA air traffic control facility possesses backup radio transmitters and receivers, as well as their own standby power source. When thunderstorms are reported in the area centers will often switch to backup generators, to avoid a power failure should commercial power sources fail. Backup generators come up to speed quickly but still require a few seconds to start and accelerate to operating speed. When they reach operating speed, the change can be made instanteously without a flicker.

LOS ANGELES ARTC CENTER

Bakersfield
125.85/346.4
127.10/317.7
133.05/263.0
135.30/372.0

Baldwin Hills
125.65/277.4
128.20/351.7
132.85/322.4

Barstow
126.35/290.2
132.50/284.7
133.55/279.6
134.65/314.2
135.57/351.9

Blythe
121.35/278.5
135.45/307.8

Boron
132.62/283.6

Cedar City
124.20/343.6
127.35/346.3
135.25/398.9
135.55/299.2

Julian
125.65/277.4
125.85/346.4
128.15/285.6
128.60/291.7
135.45/307.8
135.75/261.5

Keeler
127.90/377.1
132.62/283.6

Los Angeles ARTCC
128.20/351.7
132.50/284.7

Nelson
124.20/343.6
124.85/319.2
134.65/314.2

Potosi
127.90/377.1
132.62/283.6

Riverside
126.35/290.2

Saddle Peak
125.80/307.1
132.60/351.8
134.75/285.5

San Louis Obispo
119.05/269.5
124.15/327.8

Santa Barbara
119.05/269.5
132.15/338.3
134.42/346.3
135.50/327.1

Santa Catalina
127.40/354.1

Seligman
124.85/319.2
133.20/282.3
134.95/323.2

Tonopah
127.90/377.1

Twentynsine Palms
128.15/285.6
133.20/282.3

Yuma
121.35/278.5

Special Channels
Navy 326.7
276.3
UHF Military
Common 369.9

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Following the tragic mid-air collision over the Grand Canyon in 1956, new buildings and equipment were budgeted for every ARTC Center. These were enormous projects with backup power systems. At that time they were sited away from major metropolitan areas in radiation proof buildings designed to withstand all but a direct hit from an atomic blast. These Centers were a distinct contrast from earlier facilities. For example the Chicago Center was located in a hangar at Midway Airport. The air conditioning consisted of several large fans and ventilation provided by open windows. Would you believe the entire space occupied by this center at Midway Airport would fit into the cafeteria of todays Chicago Center? With space to spare.

MEMPHIS ARTC CENTER

Brinkley
126.85/296.7
120.85/309.7
135.30/276.3

Columbus
124.25/387.1
127.10/269.4
132.87/363.2
275.4

Fayetteville
126.10/269.0
132.55/353.8

Ft Smith
119.25/398.9

Graham
124.27/285.5
125.85/381.4
296.7

Greenville
133.07/335.5
135.80/269.3
132.12/282.2

Greenwood
132.50/290.4

Harrison
126.85/286.6

Hot Springs
118.85

Huntsville
120.80/307.0

Jackson
132.50/290.4

Louisville
132.35/263.0
282.1
362.6

Malden
135.50/350.3

McKeller
124.35/239.3
126.45/354.0
134.65/317.4

Memphis
119.30/360.8
133.12/306.9
135.22/322.3
121.50/243.0

Meridian
124.40/263.0
127.30/299.6
134.90/285.4

Nashville
124.12/327.8
132.40/263.1
133.85/317.6
135.37/306.3

Paducah
133.65/231.1

Pine Bluff
135.80/269.3
133.55/281.4

Russellville
132.30/233.8
135.02/246.6
135.62/307.1

Shelbyville
126.75/353.5

Tupelo
135.90/260.6
128.50/252.7

Walnut Ridge
127.40/319.3
132.37/257.6

++

Years ago Air Route Traffic Control Centers could be found in a variety of locations. The Cleveland Center was situated on the second floor of the Cadillac Tank Plant, while the Chicago Center was located on the second floor of a hangar at Midway Airport. One of the more peculiar settings was that of the Cincinnati Center situated on one of the upper floors of the Citizens Bank Building in downtown Cincinnati. It was reported late one evening police arrive in force to investigate the Center. It seems a good citizen in a nearby hotel had observed the controllers, telephone equipment and frantic activity and naturally assumed it was a betting parlor!

MINNEAPOLIS ARTC CENTER

Aberdeen
120.60/371.9

Alexandria
126.10/269.2
133.40/319.9

Bemidji
134.75/251.1

Brainerd
118.05/239.0

Clark
133.80/323.0
135.80/306.2

Darwin
125.50/323.1

Des Moines
125.65/288.1
132.40/343.8
135.77/372.0

Dickinson
126.80/263.0
133.55/323.2
321.3

Duluth
127.90/284.6
134.55/290.5
133.12.321.3

Eau Claire
125.30/335.6
133.75/353.9

Escanaba
127.65

Fairmont
127.75/257.7

Fargo
127.35/278.3

Farmington
134.85/352.0

Ft Dodge
134.00/288.3

Grand Forks
132.15/269.6

Grand Island
126.05

Green Bay
125.55/307.9

Hayward
126.45/278.5

Houghton
127.20/379.1

Intnl Falls
120.90/377.1

Iron Mountain
121.25/322.5
133.45/387.0

Ironwood
133.55

Jamestown
124.20/270.3
125.60/281.5

La Crosse
118.85/321.3
128.60/363.0

Mankato
132.45/306.9

Marysville
126.40/317.7
134.22/283.2

Mason City
127.30/380./2
134.25/263.1

Minneapolis
120.30/319.2
134.45/353.7
135.70/307.9

Minot
127.60/279.6

Mosinee
124.40/317.7

Omaha
119.60/290.4
128.75/346.3
134.35/256.7

O'Neill
128.00/385.5

Pelleston
133.85/327.1
134.60/323.0

Pierre
125.70/269.1
134.80/317.5

Redwood Falls
127.10/290.2
133.07/269.5

Rhinelander
133.65/281.5

Rochester
132.35/307.3

Roseau
127.80/256.9

Saginaw
118.05/282.5

Sioux City
135.87/385.4
133.37/363.1
124.10/269.0

Sioux Falls
132.10/317.4
135.45/291.7

Traverse City
132.90/398.9

White Cloud
120.85/299.3
132.55/353.6

MIAMI ARTC CENTER

Avon Park
126.52/285.5
132.72/256.7
134.55/257.7
133.15/349.0

Brooksville
132.92/323.2

Fort Myers
128.25/322.5
133.27/335.5

Freeport, GB Isl.
134.20/282.2

Grand Turk Isl.
132.30/307.2
135.20/327.0

Melbourne
124.10/269.3
128.65/343.7
132.15/348.7
135.07/307.2

Miami Site A
128.75/270.3
132.40/281.5
296.7

Miami Site C
124.70/323.0
127.00/363.2
127.70/319.1
132.95/269.0
133.20/353.9

Miami ARTC Center
121.50/243.0

Nassau
125.70/307.9
134.80/298.9

Orlando
133.50/388.0
127.55/360.6
296.7

Pahokee
132.45/299.2
133.55/291.6

Sarasota
132.35/377.1
133.90/307.3
134.92/381.6
363.1

Stock Island
132.70/306.9
132.20/290.5
281.4

Vero Beach
127.85/319.0
132.25/370.9
135.70/398.9

West Palm Beach
127.30/353.6
133.40/263.1
135.87/290.2

NEW YORK ARTC CENTER

Barnegat
132.15/354.0

Big Flat
133.47/270.3
132.20/322.4

Colts Neck
132.95/381.6

Elk Mountain
132.85/306.2
132.17/298.9
133.15/290.5
134.45/363.2

Elmira
134.32/352.0

Flint Hill
132.10/339.8
133.17/290.2
135.75/278.3

Huguenot
132.60/285.5

Joilet
133.67/239.05
132.50/322.5

Matawan
134.60/350.3
133.32/282.3

Modena
135.45/335.6

North Mountain
132.12/273.6
133.50/343.9
128.57/269.1
118.45/319.9

Phillipsburg
134.80/272.7

Sayre
133.35/372.0

Shipbottom
133.05/307.8
128.30/353.5

OAKLAND ARTC CENTER

Angels Camp
119.75/284.6
121.25/327.0
126.85/319.9
127.95/316.1
132.95/287.9
134.37/281.5

Bishop
127.75/319.8

Fallon
128.80/285.5
134.45/269.3

Ferndale
134.15/387.1

Fresno
123.80/353.8
126.90/343.8
132.80/319.1
133.70/285.4
134.37/281.5

Half Moon Bay
127.45/357.6
132.65/274.6
134.15/387.1
307.3

Hollister
127.45/307.6

Mina
125.75/319.8
132.05/291.7

Mt Tamalpais
128.70/353.5
125.85/323.0

Priest
126.90/343.8
128.70/307.0
132.80/319.1
133.70/285.4
134.55/290.5

Red Bluff
132.20/281.4
133.37/306.2
134.97/379.2

Reno
128.80/285.5
134.45/269.3

Sacramento
127.95/316.1
132.95/297.9

San Louis Obispo
128.70/307.0

Tonopah
125.75/319.8
132.05/291.7

Ukiah
128.70/353.5
132.20/281.4
134.97/379.2
133.37/306.2

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Planting a high performance jet aircraft on the pitching deck of a carrier requires exceptional skill and training. Moreover it is a skill that must be honed often to maintain its keen edge. Carrier landings in daylight hold enough interest to command the pilot's full attention; night carrier landings test the resolve of the best naval aviators.

It was three o'clock when Oakland Center called advising three F-4s were "Bingo" to Lemoore NAS. After completing night carrier landings they were scheduled to return to Alameda NAS. But while practicing, Alameda NAS as well as other airports in the area became blanketed with fog. Lemoore NAS was the only alternate airport and it was barely within fuel range.

To conserve fuel the flight arrived over Lemoore at FL-290. The first F-4 landed without incident. The second F-4 blew a tire on landing but taxiied off the runway, knowing his flight leader was close behind and nearly out of fuel. The last aircraft, the flight leader, landed GEAR UP!

To minimize drag the flight leader had kept gear and flaps retracted, planning to extend them when landing was assured. Flaring for touchdown he heard the elevator scrape the runway shocking him into the realization the gear was still retracted. Triggering the gear switch the doors opened as the aircraft settled to the runway. Aircraft damage was minimal. But as you might expect damage to the flight leader's ego was devastating.

SALT LAKE CITY ARTC CENTER

Ashton
132.40/338.3
134.50/323.0

Baker
126.35/360.6

Battle Mountain
126.10/269.0
132.25/352.0

Big Piney
134.50/323.0

Billings
135.25/343.7

Blackfoot
134.50/323.0

Bliss
118.05/317.7
128.55/397.9

Boise
118.05/272.7

Bozeman
132.40/338.3

Burley
118.05/317.7

Butte
132.42/319.0
133.40/285.4

Cascade
132.50/290.5

Cedar City
133.60/271.2

Delle
128.55/397.9
134.80/257.7

Delta
118.65/354.0
132.55/322.4
134.80/257.7

Elko
126.10/269.0
132.25/352.0

Francis Peak
128.30/269.2
132.55/322.4
134.80/257.7

Glasgow
128.80/269.4

Great Falls
119.75/251.15
133.40/285.4

Green River
119.25/291.6

Hanksville
133.60/271.2

Jackson
133.25/263.1

Judith Mountain
119.75/251.15
128.80/269.4

Lakeside
133.40/285.4

Lovell
133.25/263.1

Malad City
128.30/269.2

Miles City
128.80/269.4

Salmon
132.40/338.3

Sheridan
135.25/343.7

Squaw Butte
126.35/360.6
132.50/290.5

Sunnyside
118.65/354.0
132.55/322.4
134.80/257.7

Thermopolis
119.25/291.6
133.25/263.1

Tonopah
133.45/322.5

Watford City
128.80/269.4

Wilson Creek
118.65/354.0
133.45/322.5
134.52/278.1

Winnemucca
126.10/269.0

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Frequencies in the VHF aviation band are spaced in 25khz increments making a total of 720 channels in the band from 118.00 to 135.975. When a pilot or controller refers to a frequency ending in the numeral 2 or 7, both add the diget "5" to the frequency. Therefore 132.22 is really 132.225. When the channel ends with 2 or 7, add 5 to arrive at the proper frequency.

SEATTLE ARTC CENTER

Beacon Hill
120.30/273.6

Cottonwood
124.10/269.2
134.75/251.1

Ferndale
124.85/306.3
135.15/360.7

Ft Lawton
128.50/306.9

Horton
121.40/239.0
134.65/279.6

Klamath Falls
124.85/306.3
127.60/351.7

Lakeview
127.60/351.7
134.90/327.1

Larch Mountain
128.30/269.0
126.60/343.6
132.45/278.3

Marlin
126.10/291.6

Medford
121.40/239.0
124.85/306.3
135.15/360.7

Mohler
125.30/307.8

Neah Bay
125.10/319.2

Pendleton
125.00/269.1
132.60/343.9
135.45/281.4

Redmond
128.15/288.1
134.65/279.6

Scappoose
124.20/317.6
128.15/288.1

Spokane
124.10/269.2
134.75/251.1

Stampede Pass
134.95/270.3

The Dalles
119.65/261.5

Whidbey Island
125.10/319.2

Yakima
120.30/273.6
132.60/343.9
134.75/251.1

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FLIGHT SERVICE FREQUENCIES

Few FSS channels are included in this directory since they follow a set pattern. At airports without a control tower, the FSS uses 123.60Mhz for advisory service and primary channel. FSSs may have one or more remote outlets similar to those used by ARTC Centers. Most VOR navigation aids have voice capability used by the FSS. These same VOR facilities will have remote receivers tuned to 122.10Mhz fed to the associated FSS. With this arrangement, the FSS transmits on the VOR frequencies and hears the pilot's reply on 122.10Mhz. A common channel of 122.20Mhz is assigned to all FSSs. In addition some have discrete channels in the 122 or 123Mhz band. The system allows pilots with minimal radio capability to contact every FSS.

WASHINGTON ARTC CENTER

Atlantic City
133.12/278.5

Baltimore
134.50/360.7

Bucks Elbow
118.02/397.95
124.25/284.7
133.20/282.2
135.40/263.1
269.7

Buena Vista
125.75/a317.7
133.02/319.0
134.40/353.9

Cape Charles
135.27/275.7

Cedar Lake
128.12/362.3

Clinton
132.77/351.8
135.52/351.8
135.00/327.0

Dunn Loring
135.07/381.5

Elkins
128.60/387.1
133.27/371.9

Grantsville
133.65/285.6

Green Bay
118.75/377.1
125.45/380.3
132.02/269.4
133.72/351.9

Hagerstown
134.15/385.4

Hopewell
134.02/269.3

Kenton
120.95/277.4

Linden
127.75/319.1

Lynchberg
133.57/270.35

Martinsburg
132.27/269.65

Millville
132.05/363.0

Modena
132.52/287.9

New Bern
135.50/279.5

Patuxent River
132.55/353.6
133.90/281.4

Raleigh
132.40/346.4
135.20/352.0

Roanoke
134.62/377.2

Rocky Mount
132.22/354.1
135.30/285.5

Sea Isle
127.70/285.4

Ship Bottom
134.20/254.3

South Boston
124.05/307.0

Whaleyville
123.85/323.0
133.82/327.8
127.42/327.8
128.52/387.05
398.85

Wilmington
133.22/290.5

SAN JUAN CENTER/RAPCON

VHF	134.30	135.70	118.15	125.00
UHF	269.0	338.3	307.0	285.5

Note: none of these are remote, but all located near the Center/Rapcon.

CANADIAN AREA CONTROL CENTERS

Edmonton ACC

134.90/248.2
134.70/294.5
132.15/240.9

Gander ACC

133.15/342.9
124.80/227.3
125.90/384.5
133.90

Moncton ACC

132.20/290.6
132.50/294.5
132.70
135.30
135.65

Remote Sites

Fredericton	124.30/270.8
St. John	124.30/270.8
Yarmouth	135.20/368.5
	123.90
	132.45

Montreal ACC

132.35/229.2
133.22/245.0
134.40/294.0

Remote Sites

Gatineau	133.40/266.8
La Tuque	134.50
Mont-Joli	134.65/227.2
Mont Laurier	132.85
Quebec	135.02/270.9
Schefferville	132.90
Sept-Iles	135.55/381.9
Sherbrooke	132.55/226.0
Val D'Or	125.90/308.3
Wabush	132.25

Toronto ACC

125.77/236.8
132.47/374.5
134.57/294.5
135.62/354.3
134.92
127.00
132.80

Toronto ACC Contd.

Remote Sites

Elliot-Lake	135.40/260.9
Hamilton	133.30/290.8
London	135.30/266.3
North Bay	132.37/356.3
Petersborough	134.25/275.2
Sarnia	134.37/254.9
S. Ste Marie	134.42/227.3
	132.65/344.5
Stirling	135.05/398.4
Timmins	133.97/381.4
Waterloo-Wel.	135.62/294.5
Wawa	133.15/298.6
Wiarton	132.57/290.6

Vancouver ACC

132.30/245.0
133.70/294.5
134.80/350.7

Remote Sites

Castlegar	134.20/227.3
Cranbrook	133.60
Enderby	133.50/381.9
Kamloops	132.35/236.0
	134.40
Port Hardy	135.20/266.3
Prince George	133.80
Prince Rupert	128.00/284.0
Penticton	135.00/315.7
Puntzi	135.05/351.3
Sandspit	133.40/227.2
Terrace	128.40/269.1
Victoria	133.85/308.4
Williams Lake	134.00/381.4

Winnipeg ACC

118.00/294.5
119.70/349.6
120.50
134.40

Remote Sites

Brandon	123.70/285.4
Kenora	124.00/225.2
Regina	123.80/266.3
	124.30/283.4
Swift Current	132.80/s232.3
Thunderbay	133.25/297.7

CANADA

Abbotsbord, BC
Tower 119.40/295.0
121.10
Grnd 121.80/361.4
Apch/Dept 132.70/252.5
ATIS 119.80

Bagotville
Tower 126.20/236.6
337.7
Grnd 121.70/275.8
Apch/Dept 127.20/227.6
ATIS 124.20/302.5

Brandon, Man.
Tower 119.10/248.3
Grnd 121.70

Calgary, Alta.
Tower 118.40/374.2
Grnd 121.90/275.8
Apch/Dept 128.70/243.5
133.30/265.6
Clrnc 121.30/260.2
ATIS 127.20

Castlegar, B.C.
Tower 118.90/286.6
Grnd 121.90
Apch/Dept 134.20/227.3

Charlottetown, P.E.I.
Tower 118.00/236.6
Grnd 121.70/275.8

Chatham, N.B.
Tower 126.20/226.4
236.6
Grnd 275.8
Term Ctl 123.70/264.6

Comox, B.C.
Tower 126.20/358.1
236.6
Apch/Dept 123.70/227.6
128.10/289.4
134.10/335.9
342.9
347.5
384.5
ATIS 118.60/282.

Edmonton, Alta.
Tower 118.30/381.2
Grnd 121.70/275.6
Apch/Dept 120.50/363.8
ATIS 128.00

Fredericton, N.B.
Tower 119.00/236.6
Grnd 121.70/275.8
Apch/Dept 124.30/270.8

Gander, Nfld.
Tower 118.10/237.6
Grnd 121.90/275.8
Apch/Dept 128.50/384.5
Clrnc 134.70/247.0
134.60/247.0

Goose Bay, Lab.
Tower 119.10/236.6
Grnd 121.90/275.8
Apch/Dept 119.50/267.1
Clrnc 119.50/267.1
DF 119.50/126.7
GCA 121.20/335.8
134.10/255.4
269.6
289.4
348.6
378.5
343.3

Greenwood, N.S.
Tower 119.50/236.6
126.20/324.3
Apch/Dept 120.60/283.9
335.9
Clrnc 120.60/335.9

Halifax, N.S.
Shearwater
Tower 119.00/340.2
126.20/360.2
Grnd 121.70/250.1
Apch/Dept 119.20/225.2
ATIS 271.8
GCA 119.00/289.4
134.10/346.6

Halifax, N.S.
International
Tower 118.40/236.6
Grnd 121.90/275.8
Apch/Dept 118.70/225.2
119.20/363.8
ATIS 121.00/229.1

Hamilton Civic, Ont.
Tower 125.00/308.47
119.70
Grnd 121.60/398.12
Apch/Dept 133.30/290.8
ATIS 128.10

Lethbridge, Alta.
Tower 121.00/236.6
Grnd 121.90

London, Ont
Tower 119.40/236.6
Grnd 121.90/360.2
Apch 135.30/266.3
ATIS 127.80

Moncton, N.B.
Tower 120.80/236.6
Grnd 121.90/275.8
Apch/Dept 124.40/384.8

Montreal, Que.
Dorval
Tower 119.90/267.1
Grnd 121.90/275.8
Apch 118.90/287.2
125.15
Dept 124.65/323.2
VFR Advy 125.40/268.3
Clrnc 125.60
ATIS 128.00

Montreal, Que.
Mirabel
Tower 119.10/282.4
Grnd 121.80/246.6
Apch 125.15/287.2
Dept 124.65/323.2
125.15
VFR Advy 125.40/268.3
Clrnc 120.50
ATIS 125.70

Montreal, Que.
St Hubert

Tower	118.40/352.5
Grnd	126.40/283.4
Apch	125.15/287.2
Dept	124.65/323.2
Mil Ops	135.90/268.0
ATIS	124.90

Moose Jaw, Sask.

Tower	126.20/295.6
	310.8
Grnd	121.80/275.8
Apch	119.00/227.6
	134.10/230.1
	342.9

North Bay, Ont.

Tower	118.30/257.2
	236.6
Grnd	121.90/275.8
Apch/Dept	127.25/233.4
	135.50/285.7
	325.8
Mltry Ops	308.8
Sqdrn Ops	360.4
ATIS	124.90/228.2

Oshawa

Tower	120.10
Grnd	118.40

Ottawa International

Tower	118.80/236.6
	120.10/341.3
Grnd	121.90/275.8
Apch	127.70/356.6
Term Ctl	135.15/247.0
Dept	128.17.252.5
Clrnc	119.40/283.5
ATIS	121.15/265.6

Petawa, Ont.

Tower	126.40/250.1
Term Ctl	135.20/278.5

Penticton, B.C.

Tower	118.50/295.4
Grnd	121.90

Portage, Mant.

Tower	126.20/384.2
	119.20/236.6
Grnd	121.70/275.8
Term Ctl	125.20/358.4
ATIS	120.85/270.5

Quebec, Que.

Tower	120.30/236.6
Grnd	121.90
Apch/Dept	127.85/322.8
	135.02/270.9
ATIS	119.80

Regina, Sas.

Tower	118.60/236.6
Grnd	121.90/277.3
Apch/Dept	120.10/279.8
ATIS	127.00/276.0
Airline Co.	131.70

Saskatoon, Sas.

Tower	118.30/244.7
Grnd	121.90/275.8
Apch/Dept	119.90/323.0
ATIS	124.80/276.8

Sault Ste Marie, Ont.

Tower	118.80/236.6
Grnd	121.70
Apch/Dept	124.70/344.5

St Catherine, Ont.

Tower	119.00
Grnd	121.60
Apch/Dept	134.72/290.8

St Hubert

Tower	118.40/352.5
Grnd	126.40/283.4
Apch	125.15/287.2
Dept	124.65/323.2
ATIS	124.90

St Jean, Que.

Tower	118.20/356.8
Grnd	121.70
Apch/Dept	124.65/323.2

St John, N.B.

Tower	118.50/236.6
Grnd	121.90
Apch/Dept	124.30/270.8

Sept Iles, Que.

Tower	118.10/236.6
Grnd	121.90
Apch/Dept	135.55/381.9
ATIS	124.80

Sudbury, Ont.

Tower	125.50/233.8
Grnd	121.80

Summerside, P.E.I.

Tower	120.20/294.7
	132.95/294.7
	325.9
Apch/Dept	124.40/384.8
ATIS	228.2

Sydney, N.S.

Tower	118.10/236.6
Grnd	121.90
Apch	118.60/266.3
DF	118.10/121.9
	126.70/118.6

Thunder Bay, Ont.

Tower	118.10/236.6
Grnd	121.90/275.8
Apch/Dept	133.25/297.6
	119.20/363.8
ATIS	128.80/285.3

Toronto Buttonville

Tower	119.90
	124.80
Grnd	121.80
Apch/Dept	125.40/358.1
	127.57
	124.47/363.8
	128.80
ATIS	127.10

Toronto International

Tower	118.70
	118.35
	118.00/236.6
Grnd	121.90/275.8
	121.65
Apch	124.47/358.1
	125.40
Dept	128.80/363.8
	127.57
Clrnc	121.30
VFR Advy	119.30/253.1
ATIS	120.82/133.1

Toronto Downsview

CTAF	126.20/295.6
Apch	127.57/358.1
	125.40
Dept	128.80/363.8
	124.47

Toronto Island

Tower	118.20/226.5
Grnd	121.70
ATIS	133.60

Trenton, Ont.

Tower	128.70/236.6
Grnd	121.90/275.8
Term Ctl	128.40/324.3
ATIS	135.45/257.7

Val D'Or, Que.

Tower	118.50/236.6
Grnd	121.90
Apch/Dept	125.90/308.3

Vancouver, B.C.

Tower	118.70/226.5
	124.00/236.6
	128.60
Grnd	121.70/275.8
Apch	120.80/352.7
Dept	120.50/363.8
Clrnc	121.40
ATIS	124.60

Victoria, B.C.

Tower	119.70/239.6
	119.10
Grnd	121.90/361.4
Apch/Dept	133.85/290.8
ATIS	118.80

Waterloo-Guelph, Ont.

Tower	126.00
Grnd	121.80
Apch/Dept	135.62/294.5

Whitehorse, Y.T.

Tower	118.30/236.6
Grnd	121.90

Winnipeg International

Tower	118.30/236.6
	125.40/325.9
Grnd	121.90/275.8
Apch	119.50/356.6
Dept	119.90/363.8
Mil Ops	134.10/308.8
ATIS	120.20/291.4

Windsor

Tower	124.70/236.6
Grnd	121.70
Apch/Dept	126.85/363.2
	132.35
ATIS	134.50

Yellowknife, N.W.T.

Tower	118.50/340.8
Grnd	121.90
Apch/Dept	132.50
DF	122.20/126.7

MEXICO

Acapulco
Tower 118.50
Apch 125.20

Aguascalientes
Tower 118.70

Bahias De Hatulco
Tower 118.00

Campeche
Tower 118.50

Cancun
Tower 118.60

Chetumal
Tower 118.40
Apch 121.00

Chihuahua
Tower 118.40
Apch 121.00

Ciudad Del Carmen
Tower 118.40

Ciudad Juarex
Tower 118.90

Ciudad Obregon
Tower 118.30

Ciudad Victoria
Tower 118.20

Cozumel
Tower 118.10
Apch 120.40

Culican
Tower 118.50
Apch 119.75

Durango
Tower 118.10

Ensenada
Tower 119.75

*** Guadalajara**
Tower 118.10
Grnd 121.90
Apch 120.80

Guaymas
Tower 118.60

Hermasillo
Tower 118.70
Apch 121.40
ATIS 127.70

La Paz
Tower 118.10
Apch 120.60

Leon
Tower 118.30

Loreto
Tower 118.40

Los Mochis
Tower 118.80

Manzanillo
Tower 118.70

Matamoras
Tower 118.00

Mazatlan
Tower 118.30
Apch 121.20

Merida
Tower 118.30
Apch 121.20

Mexicali
Tower 118.20

* Mexico City
Tower 118.10
118.70
Grnd 121.90
121.00
Apch 121.20
Dept 119.70

Minatitlon
Tower 118.10

Monterrey
(Del Norte)
Tower 118.6
Apch 121.40

* Monterrey
(Gen Escobedo)
Tower 118.10
Grnd 121.90
Apch 121.40

Morelia
Tower 118.50

Nuevo Laredo
Tower 118.30

Oaxaca
Tower 118.30

Poza Rica
Tower 118.90

Puebla
Tower 118.20

Puerto Escondido
Tower 118.90

Puerto Vallarta
Tower 118.50
Apch 119.00
119.40

Reynosa
Tower 118.80

Saltillo
Tower 118.40

San Jose Del Cabo
Tower 118.90

San Luis Potosi
Tower 132.10

Tampico
Tower 118.30
Apch 120.80

Tapachula
Tower 118.20

Tijuana
Tower 118.10
Apch 119.50
120.30

Toluca
Tower 118.10
Apch 119.70

Torreon
Tower 118.50

Tuxtla Guyiterrez
Tower 118.60

Uruapan
Tower 118.20

Veracruz
Tower 118.50
Apch 120.40

Villahermosa
Tower 118.70

Zacatecas
Tower 118.00

Zihuatanejo
Tower 118.30

* ATIS 127.70

AREA CONTROL CENTERS

Mazatlan ACC	Merida ACC	Mexico ACC	Monterrey ACC
126.30	125.80/239.0	126.60	124.50
128.30	128.20	128.50	127.40
124.20	128.30	120.10	128.40
128.00			129.20

ALABAMA

Birmingham

Tower	119.90/257.8
	118.25
Grnd	121.70/348.6
Apch/Dept	132.20/385.6
	124.50/338.2
Clrnc	120.90/390.8
ATIS	119.40/294.7

Carins Army Air Field
Ft Rucker

Tower	127.00/241.0
Grnd	121.90/248.2
Apch/Dept	125.40/234.4
	133.45/237.5
	125.80/232.5
	133.75/370.3
Clrnc	120.32/304.45
ATIS	111.20/374.3

Dothan

Tower	118.40/257.6
Grnd	121.70/348.6
Apch/Dept	125.40/234.4

Huntsville
Jones

Tower	119.70/257.8
Grnd	121.90
Apch/Dept	125.60/354.1

Huntsville
Contd

Apch/Dept	118.05/239.0
	120.80/307.0
Clrnc	120.35
ATIS	121.25

Maxwell AFB
Montgomery

Tower	118.15/253.5
Grnd	127.15/289.4
Apch/Dept	124.00/319.9
	121.10/369.2
	118.45/255.6
	126.40/351.9
	132.45/322.5
ATIS	269.9

Mobile
Bates

Tower	118.30/239.0
Grnd	121.90/348.6
Apch/Dept	118.50/269.3
	121.00/307.1
	128.75/291.6
Clrnc	119.85
ATIS	124.75

Mobile
Brookley

Tower	119.60/367.7
Grnd	121.70
Apch/Dept	118.50/269.3
	128.75/291.6

Montgomery
Dannelly

Tower	119.70/257.8
Grnd	121.90/348.6
Apch/Dept	124.00/319.9
	121.10/369.2
	126.40/351.9
Clrnc	118.30/270.3
ATIS	126.65

Redstone Army Air Field
Huntsville

Tower	126.20/241.0
Apch/Dept	118.05/239.0
	125.60/354.1
	120.80/307.0
Mntnc	122.85

Troy

Tower	124.30/246.5
Grnd	121.90/366.2
Apch/Dept	125.80/232.5
ATIS	110.00

Tuscaloosa

Tower	126.30/256.7
Grnd	121.80
Apch/Dept	120.15/257.2

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In the early 1960s Cleveland was the first air route traffic control center to receive a complete new facility. Although located in Oberlin, some 25 miles west, it was the pride of Cleveland. In addition to a beautiful new building the Center received the first IBM 9020 computer system, a marvel of high technology. With extensive media coverage, opening day found citizens lined up for blocks to inspect the new Center. Opening ceremonies were accompanied by all the showmanship and political rhetoric city fathers could generate. In attendance were the usual number of brilliant, inquisitive kids who were mesmerized by flashing lights, spinning dials and blinking displays. One lad fought temptation as long as he could and finally stabbed one of those flashing lights with a jab of his finger. On the instant the computer shut down. Fortunately no serious incidents resulted from the action. A learning experience it was, not only for the boy but for the computer programmers.

ALASKA

Anchorage
International

Tower	118.30
Grnd	121.90
Apch/Dept	119.10
	126.40
	118.60
	123.80
Clrnc	119.40
ATIS	118.40

Anchorage
Lake Hood

Tower	126.80
ATIS	125.60

Note: One of few towers controlling air traffic on a water landing area.

Anchorage
Merril Field

Tower	118.70
	126.00
Grnd	121.70

Bethel

Tower	118.70
Grnd	121.70

Elmendorf AFB
Anchorage

Tower	126.20
Grnd	121.80
Apch/Dept	118.60
ATIS	124.30
Rescue	123.10

Fairbanks

Tower	118.30
Grnd	121.90

Juneau

Tower	118.70
Grnd	121.90

Kenai

Tower	121.30
Grnd	121.90

King Salmon

Tower	118.30
Grnd	121.90

Kodiak

Tower	119.80
Grnd	121.90

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A Case of Mistaken Identity

Years ago I flew one of our aero club Cessnas to the local General Aviation District Office to take a written pilot examination. While I was immersed in the test, the Chief Inspector approached with fire in his eye. "Is that your airplane" he demanded pointing to the C-170 parked outside the window. Yes, I responded intending to explain it belonged to our aero club. Before I could add a single word of explanation, he was on me like a Robin on a Junebug. The one way dialogue went something like this.

Yesterday at least five infuriated citizens telephoned to report your very dangerous aerobatic show. Because you were flying so low, your number was easily observed. NOW WE HAVE YOU REDHANDED! While I attempted to explain about the aero club Cessna, the vituperation continued with gestures, shouts, and threats of death by aircraft accident.

Eventually I maneuvered a momentary halt to the tirade. The term Aero Club finally sunk in and he realized someone else had performed the show. With this realization he spun on his heels and without another word exited the room.

ARIZONA

Chandler
Tower 121.10
Apch/Dept 124.10/269.6

Davis Monthan AFB
Tucson
Tower 126.20/253.5
Grnd 121.80/275.8
Apch/Dept 118.50/318.1
125.10/297.2
ATIS 270.1

Flagstaff
Tower 120.00/226.3
Grnd 121.90
Apch/Dept 128.45/298.9
ATIS 125.80

Ft Huachuca
Libby AAF
Tower 118.90/229.6
* 41.50
Grnd 121.70/248.2
Apch/Dept 127.95/351.8
ATIS 111.60
Libby Ops 128.25

Gila Bend AF Aux
Tower 126.20/324.1

Glendale Muni
Tower 121.00
Grnd 118.00
Apch/Dept 119.20/379.8

Grand Canyon
Tower 119.00
Grnd 121.90
Apch/Dept 124.85/319.2
ATIS 123.75

Luke AFB
Phoenix
Tower 119.10/289.6
Grnd 121.40/335.8
Apch/Dept 134.10/391.2
120.50/301.5
120.50/301.5
Clrnc 119.80/395.0
ATIS 269.9

Prescott
Tower 125.30/288.1
Grnd 121.70
Apch/Dept 128.45/298.9
ATIS 127.20

Mesa
Falcon Field
Tower 124.60
119.70
Grnd 121.30
Apch/Dept 119.20/379.8
ATIS 118.25

Phoenix
Deer Valley
Tower 118.40
120.20
Grnd 121.80
Apch/Dept 120.70/239.0
ATIS 126.50

Phoenix
Goodyear
Tower 120.10/239.3
Grnd 121.70
Apch/Dept 134.10/391.2
ATIS 118.35

Phoenix
Sky Harbor Intnl
Tower 118.70/385.4
120.90/254.3
Grnd 121.90/269.2
121.85
Apch/Dept 126.80/256.9
124.90/353.8
124.10/269.6
123.70/363.0
120.70/239.0
119.20/379.8
Clrnc 118.10/269.2
ATIS 121.20
124.30

Scottsdale
Tower 119.90
Grnd 121.60
Apch/Dept 120.70/239.0
ATIS 118.60

Tucson
Ryan
Tower 125.80
Apch/Dept 118.30/257.8
125.90/396.1
AWOS 118.05

Tucson International
Tower 118.30/257.8
119.00
Grnd 124.40/348.6
Apch/Dept 125.10/297.2
118.50/318.1
Clrnc 126.65/326.2
ATIS 123.80/320.1

Williams AFB
Chandler
Tower 126.20/255.6
Grnd 275.8
Apch 120.40/353.8
124.90/388.0
119.20/269.6
120.70/317.5
124.10/379.9
Clrnc 289.4

Yuma
Laguna AAF
Tower 126.20/241.0
* 41.50
Grnd 121.80/229.4
Apch 120.00/374.8
336.4
Rng Ctl 119.00/248.4

Yuma MCAS/International
Tower 119.30/382.8
126.20/352.5
Grnd 121.90/340.2
Apch 120.00/374.8
Dept 314.0
121.35/278.5
Clrnc 118.00/336.4
ATIS 118.80/273.2

ARKANSAS

Blytheville AFB

Tower	126.20/255.9
Grnd	275.8
Apch	125.00/291.0
Dept	363.8
Clrnc	121.80/225.4

Fayetteville

Tower	118.50/369.0
Grnd	121.80
Apch/Dept	128.15/369.0
	126.10/269.0
ATIS	133.10

Ft Smith

Tower	118.30/381.6
Grnd	121.90/275.8
Apch/Dept	125.40/393.0
	120.90/228.4
	119.25/398.9
ATIS	120.40

Little Rock
Adams

Tower	118.70/257.8
Grnd	121.90
Apch/Dept	124.20/353.6
	119.50/306.2
	385.6
Clrnc	118.10
ATIS	125.60

Little Rock AFB

Tower	124.60/348.4
Grnd	275.8
Apch/Dept	123.85/385.6
ATIS	271.3

Springdale

Tower	118.20
Grnd	121.60
Apch/Dept	128.15/369.0
	126.10/269.0

Texarkana

Tower	125.70/257.8
Grnd	121.70
Apch/Dept	124.80/381.4

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Twin Engine Glider

By the time a student commences multi-engine flight training he or she is an accomplished pilot. Training efforts focus on emergency procedures dealing with engine failure in various regimes of flight. Pilots deal better with true emergencies if trained with genuine in-flight engine failures. At our school students were instructed to expect an engine failure at any time. And if it were the left engine, which operates the hydraulic pump, it then became necessary to manually extend or retract gear and flaps. Some 50 pump strokes were necessary to lower or raise the landing gear - enough exercise to satisfy minimum daily requirements.

Training with actual engine failures has one serious flaw. When the engine unexpectedly surrenders, flying the airplane and securing the failed engine may prove a handful for the student. Hasty efforts to feather propellers on the faulty motor, may terminate with the student securing the operating engine. And if successful, immediate and overwhelming silence envelops the cockpit. Upon recovering from shock, the four hands of the instructor and student streak over the control console searching for a combination to resuscitate at least one engine. Although rarely life threatening, the experience provides enough excitement to maintain your full attention for the duration of the flight.

CALIFORNIA

Alameda NAS
Oakland

Tower	127.05/384.4
Grnd	123.95/352.4
Apch	135.40/354.1
	134.50/338.2
	124.40/351.8
Dept	120.90/323.2
	135.10/307.2
ATIS	284.2

Bakersfield
Meadows Field

Tower	118.10/257.8
Grnd	121.70
Apch/Dept	126.45/270.3
	118.80/362.3
	127.10/317.7
ATIS	118.60

Beal AFB
Sacramento

Tower	126.20/276.15
Grnd	121.60/228.4
Apch/Dept	125.45/327.5
ATIS	273.5

Burbank

Tower	118.70/254.3
Grnd	123.90/348.6
Apch/Dept	134.20/338.2
	120.40/360.6
	135.05/317.5
	124.60/395.9
Clrnc	118.00
ATIS	134.50

Camp Pendleton MCAF
Oceanside

Tower	126.20/382.2
Grnd	360.2
Apch	127.30/323.0
Dept	120.05/300.4
ATIS	267.6

Castle AFB
Merced

Tower	118.45/289.6
Grnd	275.8
Apch/Dept	124.80/379.8
	120.95/294.5
	395.0
	301.5
Clrnc	259.3
ATIS	271.8

Chico

Tower	121.00/239.3
Grnd	121.90
Apch/Dept	132.20/281.4

Chino

Tower	118.50
Grnd	121.60
Apch/Dept	135.40/295.7
ATIS	121.15

China Lake
Naval Weapons Cntr

Tower	126.20/340.2
Grnd	360.2
Apch/Dept	133.65/348.7
VFR Advy	126.55/291.6
	127.50/348.7
ATIS	265.2

Concord
Buchanan Field

Tower	123.90/257.8
	119.70
Grnd	121.90
Apch/Dept	119.90/371.2
ATIS	124.70

Edwards AFB
Palmdale

Tower	120.70/318.1
Grnd	121.80/390.1
Apch	133.65/348.7
	134.05/290.3
	133.15/269.2
ATIS	116.40/269.9

Edwards North Base

Tower	120.70/318.1
Apch	133.65/307.2

El Centro NAF

Tower	126.20/360.2
Grnd	263.4
ATIS	271.4

El Monte

Tower	121.20
Grnd	125.90
Apch/Dept	125.50/351.1
ATIS	118.75

El Toro MCAS
Tustin

Tower	133.10/271.7
Grnd	120.45/383.8
Apch/Dept	132.70/380.2
	128.10/381.4
	124.10/323.1
	124.65/343.9
	121.30/263.1
Clrnc	120.45/301.3
ATIS	117.20/284.2

Fresno Air Terminal

Tower	128.10/251.1
	118.20
Grnd	121.70/348.2
Apch/Dept	119.60/315.6
	132.35/297.2
	118.50
Clrnc	124.35/288.1
ATIS	119.30/273.6

Fritzsche Army AF
Monterey

Tower	125.15/229.6
Grnd	121.80/241.0
Apch/Dept	133.50/263.6
	128.70/307.0
	127.15
Ops	123.05

Fullerton

Tower	119.10
Grnd	121.70
Apch/Dept	124.65/343.9
ATIS	125.05

George AFB
Victorville

Tower	118.35/348.4
Grnd	275.8
Apch/Dept	133.15/269.2
	133.65/348.7
	124.05/340.9
Clrnc	225.4
ATIS	273.5

Hawthorne Muni

Tower	121.10/257.8
Grnd	125.00
Apch	128.50/360.7
	124.90/269.0
	124.50/381.6
Dept	124.30/363.2
	125.20/385.4
ATIS	118.40

Hayward Air Terminal

Tower	125.80/257.8
	118.90
Grnd	121.40
Apch/Dept	124.40/351.8
	134.50
Clrnc	124.35
ATIS	126.70

Imperial Beach OLF
San Diego

Tower	120.65/271.4
Grnd	285.9
Apch/Dept	125.15/285.2
	269.1
ATIS	276.2

Lancaster
Gen. Wm Fox

Tower	120.30/256.9
Grnd	121.70
Apch/Dept	126.10/290.3
	132.50/284.7
ATIS	126.30

La Verne
Brackett

Tower	118.20
Grnd	125.00
Apch/Dept	125.50/351.1
ATIS	124.40

Lemoore NAS
Reeves Field

Tower	126.20/360.2
	340.2
Grnd	128.30/305.2
Apch	134.10/286.0
	279.2
Dept	124.10/318.8
Clrnc	380.8
ATIS	267.6
Base Ops	299.3

Livermore

Tower	118.10/368.7
Grnd	121.60
Apch/Dept	123.85/278.3
	135.40/354.1
	126.85/319.9
ATIS	119.65

Long Beach

Tower	119.40/257.6
	120.50
Grnd	121.60
	123.90
Apch	124.65/343.9
Dept	127.20/269.6
Clrnc	118.15
ATIS	127.75

Los Angeles
International

Tower	120.95/379.1
	133.90/239.3
	119.80
	120.35
Grnd	121.75/327.0
	121.65
Apch	128.50/360.7
	124.90/269.0
	124.50/381.5
Dept	124.30/363.2
	125.20/385.4
Clrnc	121.40/327.0
ATIS	133.80
	135.65

Los Alamitos Army AF
Los Angeles

Tower	123.85/347.5
Grnd	118.55/356.6
Apch/Dept	124.65/343.9
Ops	126.20/237.2

March AFB
Riverside

Tower	127.65/253.5
Grnd	126.50/335.8
Apch/Dept	135.40/295.7
	125.50/351.1
	127.75/318.2
	119.65/327.5
	134.00/278.3
ATIS	270.1

Mather AFB
Sacramento

Tower	120.65/348.3
Grnd	120.65/275.8
Apch/Dept	127.40/285.6
	123.70/259.1
	124.50/233.5
	284.0
	363.8
	372.8
Clrnc	335.8
ATIS	119.15/270.1

McClellan AFB
Sacramento

Tower	124.60/369.2
Grnd	118.20/225.4
Apch/Dept	119.10/340.9
	124.50/271.3
	125.25/257.9
	127.40/285.6
	128.60/320.1
	125.60/383.1
	118.80/363.8
Clrnc	118.20/225.4
ATIS	109.20/269.9

Merced

Tower	121.00/252.9
Grnd	121.80
Apch/Dept	124.80/379.8
	120.95

Miramar NAS
San Diego

Tower	126.20/315.6
Grnd	380.8
Apch/Dept	120.05/269.1
	128.00/363.1
	132.20
	135.20/281.8
Clrnc	301.3
ATIS	280.4

Modesto

Tower	120.00/257.8
Grnd	121.70
Apch/Dept	125.10/363.2
	123.85/278.3
	126.85/319.9
ATIS	127.70

Moffett NAS
San Jose

Tower	126.20/353.2
	340.2
Grnd	121.85/336.4
Apch/Dept	120.10/346.0
	121.30/322.0
	134.50/350.8
	317.6
	350.8
	266.8
Clrnc	380.8
ATIS	283.0

Monterey Peninsula

Tower	118.40/257.8
Grnd	121.90/348.6
Apch	133.50/302.0
	127.15/263.6
	125.45/307.3
Dept	133.00
Clrnc	135.45
ATIS	119.25

Napa County

Tower	118.70/257.8
Grnd	121.70
Apch/Dept	127.80/353.5
ATIS	124.05

North Island NAS
San Diego

Tower	135.10/336.4
Grnd	118.00/352.4
Apch/Dept	125.15/285.2

North Island Contd.

Clrnc	128.40/356.8
ATIS	283.0
Ops	355.5

Norton AFB
San Bernadino

Tower	119.45/320.1
Grnd	121.80/289.4
Apch/Dept	127.25/318.2
	119.65/327.5
	134.00/278.3
	135.40/295.7
	125.50/351.1

Oakland International

Tower	118.30/395.9
	127.20/256.9
	124.90
Grnd	121.75
	121.90
Apch/Dept	135.40/354.1
	127.00/398.9
	120.90/323.2
	135.10/307.2
	135.65/350.8
	120.10/346.0
	133.95
	134.50
Clrnc	121.10
ATIS	128.50

Ontario International

Tower	120.60/385.6
Grnd	121.90/257.8
Apch/Dept	135.40/295.7
	134.00/278.3
	127.25/318.2
	125.50/351.1
	119.65/327.5
Clrnc	118.10
ATIS	124.25

Oxnard

Tower	120.00/257.8
Grnd	121.90
Apch/Dept	124.70/325.0
	135.50/327.1
ATIS	118.05

Palmdale AF Plant #42

Tower	119.20/317.6
Grnd	121.90/348.6
Apch/Dept	126.10/290.3

Palm Springs

Tower	119.70/257.8
Grnd	121.90
Apch/Dept	126.70/257.8
	118.85
	128.15/285.6
ATIS	118.25

Palo Alto

Tower	118.60/257.8
Grnd	125.00
Apch/Dept	120.10/346.0
	121.30/322.0
	134.50
	133.95
ATIS	120.60

Palomar
Carlsbad

Tower	118.60/392.0
Grnd	121.80
Apch/Dept	127.30
ATIS	120.15

Point Mugu NAS

Tower	124.85/382.8
Grnd	121.60/360.2
Apch/Dept	128.65/325.0
	124.85/382.8
	126.20/340.2
Clrnc	118.10/339.4
ATIS	125.55/277.2
Ops	267.5

Redding Municipal

Tower	119.80/226.3
Grnd	121.70
Apch/Dept	132.20/281.4
ATIS	124.10

Riverside

Tower	121.10/257.8
Grnd	121.70
Apch/Dept	135.40/295.7
ATIS	128.80

Sacramento Executive

Tower	119.50/257.8
Grnd	125.00
Apch/Dept	127.40/285.6
	125.25/257.9
	119.10/340.9
	118.80/363.8
ATIS	125.50

Sacramento Metro

Tower	125.70/256.7
Grnd	121.70
Apch/Dept	128.60/320.1
	127.40/285.6
	125.60/381.2
	125.25/257.9
	119.10/340.9
	118.80/363.8
	124.50/271.3
Clrnc	121.10/256.7
ATIS	126.75

Salinas

Tower	119.40/239.3
Grnd	121.70
Apch/Dept	133.00/309.2
	128.70/307.0
	133.50
ATIS	119.55

San Carlos
San Francisco

Tower	119.00/326.2
Grnd	121.60
Apch	133.95/350.8
	134.50
	132.55
Dept	135.65/338.2
ATIS	125.90

San Clemente Isl OLF

Tower	126.75/340.2
Grnd	121.85/352.4
ATIS	268.6

San Diego
Brown Field

Tower	126.90/288.1
	128.25
Grnd	124.40
Apch/Dept	119.60/306.7
ATIS	132.35

San Diego
Gillespie Field

Tower	120.70/257.8
	123.80
Grnd	121.70
Apch/Dept	124.35/381.5
Clrnc	125.10
ATIS	125.45

San Diego
Lindberg

Tower	118.30/270.9
Grnd	123.90
Apch	127.30/323.0
Dept	119.60/290.4
	125.30/306.7
	124.35/381.5
Clrnc	125.90
ATIS	134.80

San Diego
Montgomery

Tower	119.20/269.4
	125.70
Grnd	121.90
Apch	127.30/323.0
Dept	125.30
Clrnc	128.55
ATIS	126.60

San Francisco Intnl

Tower	120.50/269.1
Grnd	121.80
	124.25
	128.65
Apch	134.50/338.2
	135.65
	132.55
Dept	135.10/307.2
	120.90/323.2
Clrnc	118.20
ATIS	118.85
AWOS	118.05

San Jose International

Tower	124.00/257.6
	120.70
Grnd	121.70
Apch	120.10/346.0
	135.40
	134.50
Dept	121.30/322.0
Clrnc	118.00
ATIS	114.10 (VOR)

San Jose
Reid Hillview

Tower	119.80
	126.10
Grnd	121.80

San Jose Contd.
Reid Hillview

Apch	120.10/346.0
	134.50
	133.95
Dept	121.30/322.0
ATIS	125.20

San Nicolas Isl OLF

Tower	126.85/374.8
	127.55/311.6
	134.10/280.7
	340.2

Santa Barbara

Tower	119.70/242.4
Grnd	121.70
Apch/Dept	125.40/336.8
	120.55/321.4
	119.05/269.5
Clrnc	132.90
ATIS	125.10

Santa Maria Public

Tower	118.30/289.6
Grnd	121.90
Apch/Dept	118.00/339.1
	119.05/269.5
ATIS	121.15

Santa Monica

Tower	120.10/257.8
Grnd	121.90
Apch	128.50/360.7
	124.90/269.0
	124.50/381.6
ATIS	119.15

Sharpe Army Air Field
Stockton

Tower	126.20/233.2
Apch/Dept	123.85/278.3
	126.85/319.9

Stockton Metro

Tower	120.30/239.0
Grnd	121.90
Apch/Dept	127.75/288.3
	123.85/278.3
	125.10/363.2
	126.85/319.9
ATIS	118.25

Torrance Muni	
Tower	118.90/257.8
	124.00
Grnd	120.90
Apch/Dept	124.30/363.2
	127.20/269.6
ATIS	125.60

Travis AFB	
Fairfield	
Tower	120.75/255.9
	236.6
Grnd	121.80/289.4
Apch/Dept	119.90/371.2
	126.60/291.0
	395.8
Clrnc	127.55/335.8
ATIS	116.40/384.9
Aero Club	123.30

Twenty Nine Palms	
Tower	126.20/340.2
Grnd *	41.70/362.2
Apch/Dept	128.15/285.6

Tustin MCAS	
Tower	126.20/340.2
	350.1
Grnd	380.8
Apch	132.70/380.2
Dept	124.10/323.1
Clrnc	274.9
ATIS	384.3

Van Nuys	
Tower	119.30
	120.20
	119.00
Grnd	121.70
Apch/Dept	124.60/395.9
	134.20/338.2
	135.05/317.5
	120.40/360.6
Clrnc	126.60/239.0
ATIS	118.45

Vandenberg AFB	
Lompoc	
Tower	124.95/326.2
Grnd	118.20/275.8
Apch/Dept	118.00/339.1
	118.35/363.8
	324.3
Rng Ctl	121.40/296.5
	386.6
ATIS	125.70/271.8

Wayne	
Orange County	
Tower	119.90/379.9
	126.80
	123.85
Grnd	120.80
	121.85
Apch	121.30/263.1
Dept	128.10/381.4
Clrnc	118.00
ATIS	126.00

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Control Tower Positions of Operation

The controller staff in any FAA ATC facility is directly related to the volume of air traffic. Major airports such as Atlanta and Chicago O'Hare may staff the tower with two local controllers, two ground controllers, two flight data positions, and several coordinators. The associated IFR or radar room may include four approach controllers, one or two departure controllers and a supervisor/coordination position. During light traffic positions may be combined and the staff reduced to a few controllers.

This is a typical example.

Tower Cab	Radar Room
Supervisor/Coordinator	Supervisor/Coordinator
Local Control	Approach Control
Ground Control	Departure Control
Clearance Delivery	Flight Data

Medium size airports utilize similar positions with fewer work stations. At El Paso you might find three or four controllers in the tower during peak traffic and a like number in the radar room. At other times the total crew may consist of two or three controllers. Low activity towers may have two or three controllers on duty. These facilities are closed during late evening and early morning hours.

COLORADO

Aspen

Tower	118.40
Grnd	121.90
Apch/Dept	128.50/327.8
ATIS	120.40

Buckley ANGB
Denver

Tower	121.00/289.6
Grnd	121.60/275.8
Apch/Dept	119.30/307.3

Colorado Springs
Peterson AFB/Muni

Tower	119.90/360.6
	125.70/383.1
Grnd	121.70/384.6
Apch/Dept	118.50/380.2
	124.00/362.3
	120.60/340.7
Clrnc	134.45/385.5
ATIS	125.00/254.3

Colorado Springs
Butts Army AF

Tower	125.50/229.4
	241.0
Apch/Dept	124.00/362.3
ATIS	108.8
Rng Ctl	253.625

Denver
Stapleton

Tower	118.30/257.8
	119.50
Grnd	121.90/257.8
Apch	120.20/288.1
	120.80/363.0
	128.05/269.3
Dept	123.85/351.8
	119.30/381.5
	126.90/370.3
Clrnc	127.60/385.5
ATIS	125.60
	124.45

Denver
Centennial

Tower	118.90
Grnd	121.80
Apch/Dept	119.30/307.3
Clrnc	128.60
ATIS	120.30

Denver
Jefco

Tower	118.60/388.0
	123.95
Grnd	121.70
Apch/Dept	126.90/381.5
ATIS	126.25

Grand Junction
Walker

Tower	118.10/257.8
Grnd	121.70
Apch/Dept	119.70
ATIS	118.55

Glider Port
Elbert

Operations	123.30

Pueblo Memorial

Tower	119.10/257.8
Grnd	121.90
Apch/Dept	120.90/290.5
	120.10
	126.60/317.5
ATIS	125.25

USAF Academy
Colorado Springs

Tower	126.20/320.1
	126.10
	126.20
	126.80
Grnd	121.90
Trng Area	123.50

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UFO

While driving the Alaska Highway from Fairbanks to my home Flight Service Station some 200 miles southeast, I heard something rapidly approaching from behind. From the roar it had to be a large truck swiftly overtaking me. Yet the rearview mirror revealed nothing. The sound quickly grew to a powerful roar - almost like a rocket engine. As the sound intensified so did my anxiety from fear to panic then terror. As I reduced my speed, my full attention was focused on the rear view mirror. Yet nothing but dust appeared behind me. As the noise became almost intolerable, the heavens seemed on the verge of exploding. Then directly overhead, at less than 100ft altitude, an F-80 jet fighter streaked down the highway away from me. For the pilot it was a moment of humor, for me one of terror. Although forty years have passed and the panic and terror are long gone, a sense of anger still remains when I think of the episode.

CONNECTICUT

Danbury

Tower	119.40
Grnd	121.60
Apch/Dept	126.40/319.8
ATIS	127.75

Hartford
Brainard

Tower	119.60/248.2
Grnd	121.60
Apch/Dept	123.85/348.3
ATIS	126.45

New Haven
Tweed

Tower	124.80
Grnd	121.70
Apch/Dept	126.95/367.2
ATIS	133.65

New London
Groton

Tower	125.40/352.8
Grnd	121.90
Apch/Dept	119.45/300.4 123.95/307.9
ATIS	127.00

Rentschler

Tower	119.90/275.2
Grnd	121.70
Apch/Dept	123.85/348.3

Sikorski Memorial

Tower	120.90/257.8
Grnd	121.90
Apch/Dept	126.95/367.2
ATIS	119.15

Windsor Locks
Bradley Field

Tower	120.30/351.8
Grnd	121.90/348.6
Apch/Dept	125.80/323.2 125.65/327.1 125.35/325.8 123.85/348.3
Clrnc	121.75/322.3
ATIS	118.15

DELAWARE

Dover AFB
Dover

Tower	126.35/327.5
Grnd	121.90/225.4
Apch	128.00/339.1
Dept	324.5
Clrnc	125.55/289.4
ATIS	273.5

Wilmington
Greater Wilmington Arpt

Tower	126.00/305.4
Grnd	121.70/275.8
Apch/Dept	118.35/323.1
ATIS	123.95

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AWOS Automatic Weather Observing Stations

More automatic weather reporting stations are being placed throughout the country and some have frequencies similar to ATIS where the information may be received. As these were being developed some provided more data than others. For example the early units reported temperature and wind. Later they provided information on sky conditions and pressure as well as data on temperature and wind.

Look for these automatic weather stations and frequencies at Columbus, Ohio Norman, Oklahoma, San Francisco, Calif and Lynchburg, Virginia. There may be others but frequencies for these are listed in this directory.

FLORIDA

Bartow

Tower	121.20
Grnd	121.90
Apch/Dept	120.65/290.3
	119.90

Cape Canaveral AFS
Skid Strip

Tower	119.60/393.0
Apch	119.25/358.3
Dept	340.9

Cecil Field NAS
Jacksonville

Tower	126.10/360.2
Grnd	384.4
Apch/Dept	119.85/284.6
	120.75
	124.90
	123.80/379.9
	127.00/319.9
Clrnc	268.7
ATIS	276.2

Daytona Beach Intnl

Tower	120.70/257.8
	118.10
Grnd	121.90/348.6
Apch	123.90/381.5
	125.35/322.3
	125.80/381.5
Dept	118.85/387.0
	123.90/381.5
Clrnc	119.30
ATIS	120.05

Eglin AFB

Tower	118.20/348.4
Grnd	121.80/335.8
Apch/Dept	119.30/358.3
	125.60/315.9
	125.10/322.6
Clrnc	127.70/388.9
ATIS	273.5

Eglin AF Aux #3 (Duke)

Tower	126.20/338.7
Grnd	251.2
Apch	125.10/322.6
Dept	120.90/391.2

Ft Lauderdale Intnl
Executive

Tower	120.90/239.3
Grnd	121.75
Apch/Dept	119.70/306.3
Clrnc	127.95
ATIS	119.85

Ft Lauderdale
Hollywood

Tower	119.30/257.8
	120.20
Grnd	121.40
	121.70
Apch/Dept	128.60/255.6
	127.65/285.6
	125.50/380.2
	126.05/251.1
	119.70/306.3
	119.30
Clrnc	128.40
ATIS	135.00

Ft Meyers
SW Florida Regional

Tower	120.00/257.8
Grnd	121.90/348.6
Apch/Dept	126.80/306.2
	119.75/327.8
	128.25/322.5
ATIS	124.65

Ft Meyers
Page Field

Tower	119.00/316.7
Grnd	121.70
Apch/Dept	126.80/306.2
	119.75/327.8
	128.25/322.5

Gainesville Regional

Tower	120.50/353.7
Grnd	121.70
Apch/Dept	134.40/385.6

Hollywood

Tower	118.45/254.3
	124.40
Grnd	121.60
	121.85
Apch/Dept	128.60/255.6
ATIS	121.30

Homestead AFB
Miami

Tower	126.20/295.7
Grnd	275.8
Apch/Dept	118.10/354.1
	317.7
GCA	123.80/363.8
ATIS	269.9

Hurlburt

Tower	126.50/291.1
Grnd	257.8
Apch/Dept	119.30/358.3

Jacksonville Intnl

Tower	118.30/317.7
Grnd	121.90/348.6
Apch/Dept	118.00/351.8
	127.00/322.4
	124.90/319.9
Clrnc	119.50
ATIS	125.85

Jacksonville
Craig

Tower	132.10/242.7
Grnd	121.80
Apch	120.75/348.7
Dept	118.00/351.8

Jacksonville NAS

Tower	124.00/355.8
	340.2
Grnd	126.20/336.4
Apch/Dept	119.85/284.6
	124.90/319.9
VFR Advy	310.2
Clrnc	352.4
ATIS	281.0

Key West NAS

Tower	126.20/340.2
	360.2
	305.2
Grnd	121.70/336.4
Apch	125.25/263.6
VFR Advy	119.25/313.2
Clrnc	134.10/355.6
ATIS	277.2

Key West International

Tower	118.20/257.8
Grnd	121.90
Apch	119.25/263.6
	132.20/290.5

Lakeland

Tower	124.50
Grnd	121.40
Apch/Dept	120.65/290.3
	119.90

Lake City

Tower	118.20/314.6
Grnd	121.90
Apch/Dept	134.40/385.6

Mayport NAF
Jacksonville

Tower	118.75/265.8
	126.20/350.5
Grnd	233.7
Apch/Dept	120.75/347.8
ATIS	268.6

MacDill AFB
Tampa

Tower	126.20/294.7
Grnd	275.8
Apch/Dept	118.10/258.3
	119.65/279.6
	118.80/269.1
	134.25
ATIS	270.1

Melbourne Regional

Tower	118.20
	124.05
Grnd	121.90
Apch/Dept	125.10/340.9
ATIS	132.55

Miami International

Tower	118.30/256.9
	123.90
Grnd	127.50/348.6
	121.80
Apch	126.85/322.3
	120.50/379.9
	125.75
	120.35
Dept	119.45/301.5
	118.10/354.1
Clrnc	135.35

Miami International
Continued

ATIS	117.10
	119.15

Naples

Tower	128.50
Grnd	121.60
Apch/Dept	118.00
	128.25/322.5

Opa Locka

Tower	120.70/360.8
	125.60
	118.60
Grnd	121.90/336.4
Apch/Dept	128.60/255.6
Clrnc	119.20
ATIS	125.90

Orlando Executive

Tower	118.70/239.0
Grnd	121.40
Apch/Dept	120.15/284.7
	124.80/307.0
	119.40/259.1
	121.10/351.9
Clrnc	118.05
ATIS	127.25

Orlando International

Tower	124.30/253.5
Grnd	121.80/275.8
Apch/Dept	119.40/259.1
	120.15/284.7
	121.10/351.9
	125.55/338.2
	124.80/307.0
	134.05/339.8
Clrnc	134.70/341.7
ATIS	121.25

Palm Beach Intnl

Tower	119.10/257.8
	118.75
Grnd	121.90
	121.60
Apch/Dept	124.60/317.4
	128.30/387.1
	127.35/343.6
	125.20/397.9
Clrnc	121.60
ATIS	123.75

Panama City

Tower	120.50/257.1
Grnd	121.70
Apch/Dept	119.75/379.3
	119.10
ATIS	128.30

Patrick AFB

Tower	133.75/348.4
Grnd	124.35/335.8
Apch/Dept	119.25/358.3
	125.10/340.9
Clrnc	118.40/289.4
ATIS	273.5

Pensacola NAS

Tower	126.20/340.2
	134.10
Grnd	121.70/336.4
Apch/Dept	120.65/270.8
	125.35/372.0
Clrnc	134.10/268.7
ATIS	267.6

Pensacola Regional

Tower	119.90/257.8
Grnd	121.90/348.6
Apch/Dept	120.05/376.8
	119.00/286.0
	118.60/380.6
ATIS	121.25

Pompano Beach

Tower	125.40
Grnd	121.90
Apch/Dept	119.70/306.3

Sanford

Tower	120.30
Grnd	121.60
Apch/Dept	121.10/351.9

Sarasota-Brandenton

Tower	120.10/267.9
Grnd	121.90
Apch/Dept	119.65/258.3
	124.95
ATIS	134.15

Space Center Executive

Tower	118.90/396.9
Grnd	121.85
Apch/Dept	119.25/358.3
	124.10/269.3

St Petersberg
Whitted

Tower	120.40/257.6
Grnd	121.80/323.0
Apch/Dept	125.30/319.8

St Petersberg
Clearwater Intnl

Tower	118.30/257.8
	128.40
Grnd	121.90/348.6
Apch/Dept	125.30/363.8
ATIS	134.50

Tallahassee Muni

Tower	118.70/257.8
Grnd	121.90/348.6
Apch/Dept	120.80/317.4
	128.70/254.3
	125.15/354.1
	125.05/360.8
	126.40/351.9
Clrnc	126.65/275.8
ATIS	119.45

Tamiami

Tower	118.90
	119.60
Grnd	121.70
Apch/Dept	118.10/354.1
Clrnc	133.00
ATIS	124.00

Tampa International

Tower	119.50/239.3
	119.05
Grnd	121.70
	121.60
Apch/Dept	118.80/269.1
	126.00/319.8
	134.25/279.6
Clrnc	133.60
ATIS	126.45

Tyndall AFB
Panama City

Tower	126.20/383.1
Grnd	121.90/255.9
Apch/Dept	119.75/373.0
	124.15/294.5
Clrnc	118.05/289.4
ATIS	271.8

Vero Beach

Tower	126.10
	119.05
Grnd	121.30
Apch/Dept	132.25/370.9
Clrnc	124.25
ATIS	133.60

Whiting Fld NAS-North
Pensacola

Tower	126.20/344.2
Grnd	341.0
Apch/Dept	126.85/265.1
	127.35/278.8
Clrnc	354.8
ATIS	284.2
Base Ops	233.7

Whiting Fld NAS-South
Pensacola

Tower	126.20/349.8
Grnd	346.8
Apch/Dept	124.85/385.4
ATIS	281.2

West Palm Beach Intnl

Tower	119.10/257.8
	118.75
Grnd	121.90
	121.60
Apch/Dept	124.60/317.4
	128.30/387.1
	127.35/343.6
	125.20/397.9
ATIS	123.75

Whitehouse OLF
Jacksonville

Tower	120.35/268.8
Apch/Dept	120.75/284.6
	127.00/319.9

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ATIS Channels (Automatic Terminal Information Service)

ATIS is a continuous tape providing weather and airport information to pilots. The information is available by monitoring a specific frequency. When more than one VHF ATIS channel is listed, the data has been divided into arrival and departure segments. At military bases or civil airports with extensive military traffic you will find an UHF ATIS channel as well. When both VHF and UHF channels are listed, the data is simulcast on both.

ATIS information is updated hourly and more often if weather or airport conditions change. During rapidly changing conditions, weather reports may be omitted from the ATIS and delivered during contacts with the controller.

ATIS alerts pilots to abnormal conditions such as snow and ice, braking action, closed runways and taxiways and similar situations. The ATIS tape also contains information related to runway and taxiway lighting as well as navigation aids and other facilities.

GEORGIA

Albany

Tower	120.25/381.2
Grnd	121.90/348.6
	241.0
Apch/Dept	125.75/226.8
	127.20

Atlanta
De Kalb

Tower	120.90/228.3
	120.00
Grnd	121.60
Apch/Dept	119.30/381.6
Clrnc	125.20
ATIS	128.40

Atlanta
Fulton

Tower	118.50/257.8
	120.70
Grnd	121.70/348.6
Apch/Dept	121.00/385.5
Clrnc	123.70
ATIS	119.00

Atlanta
Hartsfield

Tower	119.10/257.6
	119.50
	123.85
Grnd	121.75/348.6
	121.90
Apch	127.90
	118.35
	126.90
	127.25/379.9
Dept	125.00/284.7
	125.70
Clrnc	121.65
ATIS	119.65
	125.55

Augusta

Tower	118.70/239.3
Grnd	121.90/348.6
Apch/Dept	126.80/270.3
	119.15/231.1
	128.10/323.0

Columbus Metro

Tower	120.10/257.8
Grnd	121.90/348.6
Apch/Dept	126.00/226.4
	126.55/278.5
	125.50/388.0
	134.70/357.6
ATIS	127.75

Dobbins AFB

Tower	120.75/397.2
Grnd	121.80/275.8
Apch/Dept	121.00/385.5
ATIS	271.6

Hunter Army Air Field
Savannah

Tower	133.55/241.0
Grnd	121.80/248.2
Apch/Dept	118.40/354.0
	120.40/388.8
	125.30/387.1
	121.10
	120.85/322.5
	ATIS 111.60

Lawson Army Air Field
Ft Benning

Tower	126.20/229.4
Grnd	121.05/340.1
Apch/Dept	125.50/388.0
	126.00/226.4
	126.55/278.5
Clrnc	121.70/248.2
ATIS	111.40
Base Ops	128.15/372.2

Macon

Tower	118.30/257.8
Grnd	121.65
Apch/Dept	119.60/388.2
	124.20/279.6
	124.80
	133.10/348.7
ATIS	118.95/327.5

Moody AFB
Valdosta

Tower	126.60/289.6
Grnd	275.8
Apch/Dept	125.25/316.7
	124.60/259.3
	126.60/285.6
	306.3
Clrnc	121.25/225.4
ATIS	270.1

Savannah International

Tower	119.10/257.8
Grnd	121.90/348.6
Apch/Dept	125.30/387.1
	120.40/388.8
	118.40/354.0
	121.10
Clrnc	119.55/295.7
ATIS	123.75

Valdosta

Tower	120.90
Grnd	121.70
Apch/Dept	126.60/285.6
	125.95/379.2
	124.60/259.3

Robbins AFB
Macon

Tower	126.20/320.1
Grnd	121.90/275.8
Apch/Dept	119.60/388.2
	124.20/279.6
	133.10/348.7
ATIS	118.95/327.5

Wright Army Air Field
Savannah

Tower	126.20/231.8
Grnd	121.70/234.4
Apch/Dept	118.40/354.0
	120.85/322.5
	339.3
Rng Ctl	127.35/247.0

IDAHO

Boise Air Terminal

Tower	118.10/257.8
	119.00
Grnd	121.70/348.6
Apch/Dept	119.60/269.4
	126.90/379.8
Clrnc	125.90/323.2
ATIS	123.90/265.5
ANG Ops	298.7

Coeur D' Alene

Tower	119.10/308.9
Grnd	121.80
Apch/Dept	125.80/384.9

Idaho Falls

Tower	118.50/257.8
Grnd	121.70
Apch/Dept	134.50/323.0

Lewiston

Tower	119.40/318.8
	125.70
Grnd	121.90
Apch/Dept	124.10/267.2

Pocatello

Tower	119.10/257.8
Grnd	121.90
Apch/Dept	134.50/323.0

Mountain Home AFB

Tower	126.20/253.5
Grnd	275.8
Apch/Dept	124.80/259.1
	371.2
Clrnc	127.10/373.0
ATIS	273.5

Twin Falls

Tower	118.20/398.2
Grnd	121.70
Apch/Dept	118.05/317.7

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ATC BOUNDARIES

If you look carefully at an aeronautical chart depicting ARTC Center boundaries, you soon discover they do not necessarily follow national borders. For example Cleveland and Minneapolis ARTC Centers control airspace in Canada. Similarly Winnipeg Center controls airspace in the U.S. borders. There are, of course, good reasons for this arrangement.

As you know, telephone communications as well as radio and radar are critical elements to air traffic control process. Therefore where radio and/or radar coverage allows a foreign center to provide better service, airspace was delegated to that facility without regard to boundaries. And by mutual agreement ATC boundaries are established where they afford optimum ATC service.

Looking under remote ARTC Center frequencies, note the first site listed for Cleveland Center is Algonac which is located in Canada. Moreover there may be others for both Canadian and U.S. ARTC Centers.

ILLINOIS

Alton
St Louis Regional

Tower	126.00/239.0
Grnd	120.20
Apch/Dept	124.20/338.0
ATIS	128.00

Aurora

Tower	120.60
Grnd	121.70
Apch/Dept	133.50/371.9
ATIS	125.85

Bloomington-Normal

Tower	124.60/388.9
Grnd	121.80
Apch/Dept	118.05/256.0

Cahokia
Downtown St Louis

Tower	120.90/357.4
Grnd	121.80
Apch/Dept	126.70/254.3
ATIS	127.85

Carbondale

Tower	118.20/322.4
Grnd	121.80
Apch/Dept	119.40
ATIS	119.85

Champaign

Tower	120.40/229.4
Grnd	121.90
Apch/Dept	121.35/291.0
	132.85/285.65
	118.25/284.7
	125.05
Clrnc	128.75
ATIS	124.85

Chicago
Paul-Waukee

Tower	119.90
	124.70
Grnd	121.70
Apch/Dept	120.55/290.2
	125.00
Clrnc	124.70
ATIS	124.20

Chicago
Meigs

Tower	121.30/257.8
Grnd	121.80
Apch/Dept	118.40/388.0
ATIS	127.35

Chicago
O'Hare Intnl

Tower	118.10
	120.75
	126.20/390.9
Grnd	121.90/348.6
	121.75
Apch/Dept	125.70/284.0
	119.00/393.1
	124.35
	128.45
	125.00/337.4
	127.40/269.5
	125.40/307.2
Metering	121.15
Clrnc	121.60
	119.25
ATIS	135.40/269.9

Chicago
Midway

Tower	118.70/226.3
Grnd	121.70
Apch/Dept	118.40/388.0
	126.05
Clrnc	121.85
ATIS	132.75

Decatur

Tower	118.90/392.1
Grnd	121.90
Apch/Dept	132.85/291.0
	121.35
ATIS	126.35

Du Page

Tower	120.90/257.8
	124.50
Grnd	121.80
Apch/Dept	133.50/371.9
Clrnc	119.75
ATIS	124.80

Glenview NAS
Chicago

Tower	126.20/340.2
Grnd	121.85/382.8
Apch/Dept	119.00/353.9
	125.70/363.8
	126.90/290.2
	120.55/337.4
	125.00
	134.40
ATIS	281.0

Moline

Tower	119.40/257.8
Grnd	121.90
Apch/Dept	118.20
	125.95
	118.75/351.7
Clrnc	123.95
ATIS	121.20

Peoria

Tower	119.10/252.9
Grnd	121.90/348.6
Apch/Dept	125.80/269.2
	119.95/326.2
Clrnc	121.70
ATIS	126.10/282.2

Rockford

Tower	118.30/239.0
Grnd	121.90
Apch/Dept	126.00/327.0
	133.00/379.2
ATIS	126.70

Scott AFB

Tower	126.20/253.5
Grnd	119.20/275.8
Apch/Dept	124.70/259.1
Clrnc	121.75/225.4
ATIS	118.65/273.5

Springfield

Tower	121.30/257.8
Grnd	121.90/348.5
Apch/Dept	118.60/307.0
	126.15/395.8
	127.27/327.5
Clrnc	121.70
ATIS	127.65/270.1

INDIANA

Anderson

Tower	126.00
Grnd	121.60
Apch/Dept	120.65/379.8
	318.2

Bloomington

Tower	121.20
Grnd	121.90
Apch/Dept	124.15/339.8

Columbus Muni

Tower	118.60
Grnd	121.60
Apch	121.10
	119.30
Dept	124.95/317.8
Clrnc	134.85

Elkhart Muni

Tower	119.50
Grnd	121.80
Apch/Dept	118.55/257.8
	127.55/263.1
Clrnc	119.70

Evansville Regional

Tower	118.70/257.8
Grnd	121.90
Apch/Dept	126.40/226.4
	127.35/267.9
	128.30/363.0
Clrnc	126.60
ATIS	120.20

Ft Wayne Regional
Baer Field

Tower	119.10/257.8
Grnd	121.90/348.6
Apch/Dept	120.20/260.6
	126.60/284.6
	134.05
Clrnc	124.75
ATIS	121.25/349.0

Gary Muni

Tower	126.30
Grnd	121.90
Apch/Dept	133.10/285.6

Grisson AFB

Tower	126.20/295.7
Grnd	275.8
Apch/Dept	120.65/318.2
	121.05/363.8
Clrnc	324.3
ATIS	271.8

Indianapolis Intnl

Tower	120.90/257.8
	123.95
Grnd	121.90
	121.80
Apch	121.10
	119.30
	127.15
Dept	124.95/317.8
	119.05
	124.65
Clrnc	133.85
ATIS	125.35

Lafayette
Purdue Univ.

Tower	119.60/393.0
Grnd	121.90
Apch/Dept	123.85
	134.60/319.2
ATIS	127.75

Muncie
Delaware Co

Tower	120.10/379.8
Grnd	121.90
Apch/Dept	120.65/318.2
ATIS	133.25

South Bend
Michiana Rgnl

Tower	118.90/257.8
Grnd	121.70
Apch/Dept	124.10
	118.55
	132.05
	127.55/263.1
Clrnc	121.90
ATIS	118.15

Terre Haute

Tower	118.30/239.0
Grnd	121.60/348.6
Apch/Dept	125.45/339.8
	119.80/288.15
ATIS	127.50/284.4

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RUNWAY SUPERVISORY UNITS AT TAC AND TRAINING BASES

USAF bases serving Air Training Command and Tactical Air Command often use a facility known as an RSU - Runway Supervisory Unit. At some ATC bases, the control tower may have little to do while the RSU supervises traffic. Responsibility between the control tower and RSU may be divided by different means. For example the tower may control one runway while the RSU supervises another. As you might guess this leads to cross purposes on occasion. RSU frequencies are considered local in-house channels and are not published outside the local area. If you are near an ATC or TAC base you might acquire RSU frequencies from local sources - pilots, controllers, students etc. RSU channels will be found in the UHF military aviation band 225-400Mhz. You may find some very interesting listening.

IOWA

Cedar Rapids Muni

Tower	118.70/247.2
Grnd	121.60
Apch	119.70
	119.05
	134.05/247.2
Dept	132.80/261.5
Clrnc	125.45
ATIS	124.15

Dubuque

Tower	119.50/226.8
Grnd	121.80
Apch/Dept	127.00/351.8

Des Moines Intnl

Tower	118.30/257.8
Grnd	121.90/348.6
Apch/Dept	123.90/252.9
	135.20/360.7
	118.60/350.3
Clrnc	134.15/321.1
ATIS	119.55/283.0

Sioux Gateway

Tower	118.70/254.3
Grnd	121.90/348.6
Apch/Dept	124.60/307.0
	134.60/325.8
	124.10/269.0
ATIS	119.45/277.2

Waterloo

Tower	118.10
Grnd	121.90/248.2
Apch/Dept	118.90/381.2
	126.75
	118.90/257.8
ATIS	120.65

KANSAS

Hutchinson

Tower	118.50/363.3
Grnd	121.90
Apch/Dept	125.50/325.8
	118.80/337.4
ATIS	124.25

Marshall Army Air Field
Manhattan

Tower	126.20/248.2
Grnd	121.70/229.4
Apch/Dept	127.35/388.8
ATIS	109.40

McConnell AFB
Wichita

Tower	126.20/295.7
	236.6
Grnd	118.00/275.8
Apch/Dept	120.60/269.1
	290.3
	126.70/353.5
	134.80/269.1
	281.5
ATIS	119.50/269.9
Ang Ops	301.6

Olathe
Industrial

Tower	118.30
Grnd	124.30
Apch/Dept	118.90/294.7

Olathe
Johnson Executive

Tower	126.00/241.1
Grnd	121.60
Apch/Dept	118.90/294.7
ATIS	119.35

Salina

Tower	119.30/257.7
Grnd	121.90
Apch/Dept	134.90/363.2

Sherman Army Air Field
Ft Leavenworth

Tower	126.20/241.0
Apch/Dept	126.60/318.1
	124.70

Topeka
Billard

Tower	118.70/257.8
Grnd	121.90
Apch	120.50/290.2
Dept	363.0

Topeka
Forbes

Tower	120.80/255.9
Grnd	121.80/275.8
Apch/Dept	120.50/290.1
ATIS	119.45

Wichita
Beech Factory

Tower	126.80/314.6
	126.20
Grnd	121.70
Apch/Dept	134.80/269.1
	126.70/353.5
	120.60/281.5
Clrnc	125.00

Wichita
Mid Continent

Tower	118.20/257.8
Grnd	121.90/348.6
Apch/Dept	120.60/281.5
	126.70/353.5
	134.80/269.1
	134.45/290.3
Clrnc	125.70
ATIS	125.15

KENTUCKY

Covington
Greater Cincinnati

Tower	118.30/286.6
Grnd	121.70
Apch/Dept	119.70/257.2
	124.70
	121.00
	123.87
Clrnc	121.30
ATIS	135.30

Campbell Army Air Field
Ft Campbell

Tower	126.20/241.0
Apch/Dept	118.10/255.6
*	139.90/363.8
Flt Advy	139.30/242.4
Clrnc *	138.80/368.3
ATIS *	141.05/302.2

Ft Campbell
Sabre AHP

Tower	*143.30/280.9
Grnd	*149.85/267.3
Apch/Dept	118.10/255.6

*Outside VHF Band

Godman Army Air Field
Ft Knox

Tower	126.20/229.6
Grnd	121.90/241.0
Apch/Dept	123.70/306.2
ATIS	109.60

Lexington
Blue Grass

Tower	119.10/257.8
Grnd	121.90
Apch/Dept	120.15/259.3
	120.75/298.9
	127.00/285.4
	125.00
Clrnc	132.35
ATIS	126.30

Louisville
Bowman

Tower	119.50/248.2
	118.90
Grnd	121.80
Apch/Dept	124.50/306.2
	120.50
ATIS	112.20

Louisville
Standiford

Tower	120.30/257.8
Grnd	121.70/348.6
Apch/Dept	123.70/327.0
	124.50/306.2
	126.55
Clrnc	126.10
ATIS	118.15/388.2

Owensboro
Davies County

Tower	120.70
Grnd	121.70
Apch/Dept	126.40/226.4
	128.30/363.0
Clrnc	125.80

Paducah
Barkley Regional

Tower	119.60/226.3
Grnd	121.70
Apch/Dept	133.65/231.1

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Tales from the Tower

A supervisor in Los Angeles Tower related an incident that happened some years ago. During the early evening with arrival traffic strung out like pearls all the way to Needles, without warning or radio contact a Piper Cherokee of Mexican registry circled over the approach end of the arrival runway. Frantic calls to the aircraft went unanswered. The supervisor, who spoke fluent Spanish, took the microphone. Transmitting in Spanish, he too failed to get a response. If something wasn't done soon the arrival sequence would collapse in total chaos. Blissfully unaware of the havoc he was wreaking on the arrival sequence, the pilot circled once more, landed and taxied to the gas pump. Immediately the supervisor was on the telephone to the fuel distributor. When he answered the phone, the supervisor asked the attendant if the aircraft wasn't of Mexican registry. Yes it was! Well doesn't the pilot speak Spanish? I don't think so replied the fuel attendant, looks to me like he's Chinese!

LOUISANA

Alexandria
Esler Field

Tower	118.00/324.3
Grnd	121.70
Apch/Dept	118.20/289.1
	128.55/343.9

Barksdale AFB
Shreveport

Tower	126.20/295.7
	236.6
Grnd	121.80/275.8
Apch/Dept	118.60/350.2
	119.90/351.1
	125.10/363.8
	121.40/372.9
ATIS	375.8

Baton Rouge
Ryan

Tower	118.30/257.8
Grnd	121.90
Apch/Dept	120.30/278.3
	126.50
	126.00/323.2
Clrnc	119.40
ATIS	125.20

England AFB
Alexandria

Tower	127.20/255.6
Grnd	275.8
Apch	118.20/301.5
Dept	121.20/289.1
	395.9
ATIS	270.1
SFO	280.5

Lafayette Regional

Tower	118.50/257.8
Grnd	121.80
Apch/Dept	124.00/278.5
	121.10/363.0
	133.65/263.1
Clrnc	125.55
ATIS	120.50

Lake Charles

Tower	120.70/257.8
Grnd	121.60
Apch/Dept	119.80/319.9
	119.35
	119.75
	126.40/381.6
Clrnc	125.60
ATIS	118.75

Monroe Regional

Tower	118.90/257.8
Grnd	121.90
Apch/Dept	126.90/388.0
	118.15
	135.10/271.2
Clrnc	121.65
ATIS	125.05

New Iberia
Acadiana Regional

Tower	125.00/267.2
Grnd	121.70
Apch/Dept	121.10/278.5
	128.40/327.1
Clrnc	118.05

New Orleans
Houma-Terrebonne

Tower	125.30/346.3
	118.35
Grnd	121.80
Apch/Dept	118.90/256.9
ATIS	120.25

New Orleans
Lake Front

Tower	119.90/257.8
Grnd	121.70
Apch/Dept	120.60/290.3
	123.85/256.9
Clrnc	127.40
ATIS	124.90

New Orleans
Moisant Intnl

Tower	119.50/254.3
Grnd	121.90
Apch	120.60/290.3
	123.85/256.9
	125.50/284.7
Clrnc	127.20
ATIS	126.70
	127.55

New Orleans NAS
Callendar Field

Tower	118.70/340.2
	360.2
Grnd	126.20/382.8
Apch/Dept	123.85/256.9
ATIS	276.2

Polk Army Air Field
Alexandria

Tower	119.00/248.2
Grnd	121.80/248.0
Flt Flw	*143.20/373.3
Ops	123.45/374.2

Shreveport
Regional

Tower	121.40/257.8
Grnd	121.90
Apch/Dept	118.60/350.2
	125.10/363.8
	119.90/351.1
	121.40/372.9
Clrnc	124.65
ATIS	128.45

Shreveport
Downtown

Tower	119.60/247.6
Grnd	121.70
Apch/Dept	118.60/350.2
	125.10/363.8
	119.90/351.1
	121.40/372.9

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In addition to most of todays ARTC Centers, during the 1950s Centers operated in Cincinnatti, Detroit, El Paso, Great Falls, New Orleans, Phoenix, Pittsburg, San Antonio and St Louis. If you haven't counted them, there are 20 ARTC Centers in the continental U.S. today.

MASSACHUSETTES

Bedford
Hanscom

Tower	118.50/236.6
Grnd	121.70
Apch/Dept	124.40/279.6
Clrnc	121.85
ATIS	124.60

Beverley Muni

Tower	125.20
Grnd	121.60
Apch/Dept	124.40/279.6
ATIS	118.70

Boston International
Logan

Tower	121.75 (Helio)
	119.10/257.8
Grnd	121.90
Apch	120.60/382.0
	133.00/263.1
Dept	118.25 (Props)
	127.20 (Jets)
	124.10/343.6
Gate Ctl	134.05
Clrnc	121.65
ATIS	135.00
Tlfo ATIS	567-0160

Hyannis
Barnstable

Tower	119.50/257.8
Grnd	121.90
Apch/Dept	118.20/284.6
	132.90/387.1
Clrnc	125.15
ATIS	123.80

Lawrence

Tower	120.00
Grnd	124.30
Apch/Dept	124.40/279.6
ATIS	126.75

Martha's Vineyard

Tower	121.40
Apch/Dept	124.70/318.1
	132.90/387.1
Clrnc	121.80
ATIS	126.25

Moore Army Air Field
Boston

Tower	119.35/241.0
Apch/Dept	124.40/279.6

Nantucket Memorial

Tower	118.30/257.9
Grnd	121.70
Apch/Dept	126.10/318.1
	132.90/387.1
Clrnc	127.75
ATIS	126.60

New Bedford Muni

Tower	118.10/239.0
Grnd	121.90
Apch/Dept	118.60/279.2
	123.95/307.9
ATIS	126.85

Norwood Memorial

Tower	126.00
Grnd	121.80
Apch	124.10/263.1
Dept	118.25/343.6
ATIS	119.95

Otis ANGB
Falmouth

Tower	121.00/294.7
	236.6
Grnd	121.60/275.8
Apch/Dept	118.20/284.6
	126.30/318.1
	132.90/387.1
	118.75/291.1

South Weymouth NAS
Boston

Tower	126.20/360.2
	340.2
Grnd	352.4
Apch	120.60/263.1
	126.50/281.5
	127.20/343.6
	121.20/263.1
	126.30
	124.00

Westfield
Barnes Muni

Tower	118.90/251.1
Grnd	121.70/289.4
Apch/Dept	125.35/325.8
ATIS	127.10

Westover AFB

Tower	118.35/348.4
Grnd	126.20/275.8
Apch/Dept	125.35/325.8

Worcester Muni

Tower	120.50/263.0
Grnd	121.90
Apch/Dept	119.00/327.1
ATIS	126.55

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Commuter airlines often have company channels used to contact their local agent before arrival and after departure. In addition to these contacts you will hear requests for special items such as wheel chairs, or a request to hold a departing flight for a connecting passenger and similar messages. Lopok for some unusual conversation on these channels such as notifying airport police to arrest a disorderly passenger or a request for emergency medical service for a seriously ill passenger. Often you can obtain these frequencies by asking the agent. If not, search for them between 128.75 and 132.00mhz.

MAINE

Bangor International

Tower	120.70/257.8
Grnd	121.90/348.6
Apch/Dept	124.50/390.9
	125.30/239.3
ATIS	126.75

Brunswick NAS

Tower	119.60/340.2
Grnd	126.20/352.4
Apch	118.15/263.6
	134.10/348.6
Clrnc	360.2

Loring AFB
Limestone

Tower	126.20/294.7
	236.6
Grnd	275.8
Apch/Dept	124.70/363.8
	359.3

Portland International

Tower	120.90/257.8
Grnd	121.90
Apch/Dept	119.75
	125.50
	128.20
	132.40/381.2
Clrnc	121.65
ATIS	119.05

MARYLAND

Baltimore-Wash. Intnl

Tower	119.40/257.8
Grnd	121.90
Apch/Dept	119.00/228.4
	119.70/231.6
	128.70/307.9
Clrnc	118.05
ATIS	115.10/127.8

Baltimore
Martin State

Tower	121.30/297.2
Grnd	121.80/253.4
Apch/Dept	119.00/228.4

Hagerstown

Tower	120.30/265.7
Grnd	121.90
Apch/Dept	134.50/385.4

Phillips Army Air Field
Baltimore

Tower	126.15/229.6
Grnd	121.90/241.0
Apch/Dept	126.75/307.9
ATIS	108.40

Tipton Army Air Field
Baltimore

Tower	127.00/248.2
Grnd	121.75/227.1
Apch/Dept	119.70/231.6

Patuxent River NAS
Washington

Tower	123.65/344.4
Grnd	120.60/336.4
Apch/Dept	127.95/314.0
	120.05/281.8
	132.55/353.6
Clrnc	126.20/384.4
ATIS	276.2

MONTANA

Billings
Logan Intnl

Tower	124.20/257.8
Grnd	121.90
Apch/Dept	120.50/284.6
	119.20
	135.25/343.7
Clrnc	118.05
ATIS	126.30

Helena

Tower	118.30/257.8
Grnd	121.90
Apch/Dept	119.50/226.3

Great Falls
International

Tower	118.70/282.2
Grnd	121.70/348.6
Apch/Dept	121.10/259.1
	124.15/290.3
	133.40/285.4
Clrnc	127.55/363.8
ATIS	126.60/269.0

Malmstrom AFB
Great Falls

Tower	126.20/252.9
Grnd	275.8
Apch/Dept	118.10/259.1
	121.10/290.3
	119.30
	133.40/285.4

Missoula County

Tower	118.40/387.1
Grnd	121.90
Apch/Dept	124.90/387.1
	133.40/285.4
ATIS	126.65

MICHIGAN

Alpena

Tower	120.90/383.1
	126.20
Grnd	121.90/275.8
Apch/Dept	134.80/279.6

Ann Arbor

Tower	120.30
Grnd	121.60
Apch	118.95/363.2
Dept	348.3

Battle Creek

Tower	118.50/239.0
Grnd	121.70
Apch/Dept	121.20/340.9
	127.55/263.1

Detroit
Wayne

Tower	135.00/287.1
	118.40
Grnd	119.45
	121.80
Apch	124.05/363.2
	124.25
	125.15
Dept	118.95/348.3
	120.15
Clrnc	120.65
ATIS	124.55

Detroit
Willow Run

Tower	120.00/351.7
Grnd	121.90
Apch	124.05/363.2
Dept	118.95/348.3
ATIS	127.45

Flint

Tower	126.30/257.9
Grnd	121.90
Apch/Dept	118.80/257.9
	128.55
	127.70/307.8
Clrnc	121.75
ATIS	124.95

Grand Rapids
Kent County

Tower	119.30/257.6
Grnd	121.90
Apch/Dept	124.60/257.6
	128.40
	134.95/287.9
Clrnc	126.35
ATIS	118.85

Grayling AAF

Tower	126.20/241.0
Grnd	121.90
Apch/Dept	132.90/398.9

Jackson

Tower	120.70/257.8
Grnd	121.90
Apch/Dept	127.30
ATIS	127.95

Kalamazoo

Tower	118.30
Grnd	121.90
Apch/Dept	121.20/340.9
	123.80/263.1
	119.20/255.9
Clrnc	121.75
ATIS	127.25

K I Sawyer AFB
Marquette

Tower	126.20/255.6
	236.6
Grnd	275.8
Apch/Dept	119.10/259.3
	363.8
Clrnc	121.10/335.8
ATIS	269.9

Lansing

Tower	119.90/240.9
Grnd	121.90
Apch/Dept	118.65/226.4
	125.90
Clrnc	120.40
ATIS	119.75

Muskegon

Tower	121.10/363./1
Grnd	121.80
Apch/Dept	118.20/339.1
	119.80
	125.65/285.4
ATIS	124.30

Pontiac
Oakland

Tower	120.50
	123.70
Grnd	121.90
Apch	124.90/363.2
Dept	348.3
Clrnc	118.25
ATIS	125.45

Saginaw
Tri City

Tower	120.10/257.7
Grnd	121.70
Apch/Dept	126.45/381.5
	118.45
	127.70/307.8
Clrnc	121.85
ATIS	118.60

Selfridge AFB
Mt Clemmons

Tower	126.20/340.7
Grnd	128.30/275.8
Apch/Dept	119.60/318.2
	126.75/335.6
	395.9
Clrnc	134.10/259.95
ATIS	270.1
Rescue	123.10/381.0

Traverse City
Cherry Capitol

Tower	124.20/348.6
Grnd	121.80
Apch/Dept	132.90/398.9
ATIS	126.00

Wurtsmith AFB

Tower	126.20/289.6
Grnd	275.8
Apch	128.60/301.5
Dept	395.0

MINNESOTA

Duluth International

Tower	118.30/257.8
Grnd	121.90/348.6
Apch/Dept	125.80/255.9
ATIS	124.10/270.1

Minneapolis
Anoka-Blaine

Tower	118.20
Grnd	121.80
Apch/Dept	126.50/335.5
Clrnc	121.30

Minneapolis
Crystal

Tower	120.70
Grnd	121.60
Apch/Dept	126.50/335.5
ATIS	125.70

Minneapolis
Flying Cloud

Tower	118.10
	125.20
Grnd	121.70
Apch/Dept	125.00/335.5
ATIS	124.90

Minneapolis
Wold Chamberlain

Tower	126.70/257.6
	123.95
Grnd	121.90/348.6
Apch	126.95/335.5
	119.30
Dept	120.00/357.4
	124.70
Clrnc	133.20
ATIS	135.35
	120.80

Miller Army Air Field N

Tower	126.20/241.0
Apch/Dept	118.05/239.0

Rochester

Tower	118.30
Grnd	121.90
Apch/Dept	119.20
	119.80
	132.35/307.3
ATIS	120.50

St Paul

Tower	119.10/257.8
Grnd	121.70
Apch/Dept	121.20/335.5
ATIS	118.35

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Midair Collision

It seems every pilot who was formerly a cadet at the Air Force Academy is destined to make a flight over the Academy on nearly every return trip to Colorado Springs. These passes are not the fast, low aerobatic maneuvers common to WWII pilots but an aerial view of the institution where pilots spent years studying and training. On one of these flights and F-4 pilot and his WSO (Weapons System Officer) made the usual tourist pass and followed with a landing at Colorado Springs airport. Within moments the tower received a call from Black Forest Glider Port a few miles north. On the telephone was a glider pilot calling to report a mid-air collision. An F-4 had overtaken him from the rear, passing so near it severed the outrigger wheel from the glider wing tip. Confirmation was positive when the outrigger wheel captured from the glider was found embedded in the wing of the F-4. Neither the pilot nor WSO had seen the glider. Interviewing the pilot and WSO neither could remember being given traffic information. Yet in replaying the tape the controller had observed the glider and issued this traffic and the pilot acknowledged receipt. It seems incredible the F-4 pilot could overtake and pass a glider without catching a glimpse of it. Even more incredible is the fact the F-4 and glider collided in flight and both survived with minor damage!

MISSISSIPPI

Columbus AFB

Tower	128.65/289.6
Grnd	275.8
Apch/Dept	134.10/226.0
	120.40/301.5
	126.35/389.8
	324.5
Clrnc	126.25/338.6
ATIS	115.20/273.5

Greenville Muni

Tower	119.00
Grnd	121.80
Apch/Dept	135.80/269.3

Gulfport-Biloxi Rgnl

Tower	123.70/379.8
Grnd	121.90/348.6
Apch/Dept	124.60/354.1
	127.50/287.1
	128.75/279.6
ATIS	119.45

Hagler Army Air Field

Tower	126.20/241.0

Jackson Hawkins

Tower	118.70/257.8
Grnd	121.90/239.0
Apch/Dept	120.00/319.2
	123.90/317.7
	132.50/290.4

Jackson Thompson

Tower	120.90/352.0
Grnd	121.70
Apch/Dept	123.90/317.7
	120.00/319.2
	132.50/290.4
ATIS	121.05

Keesler AFB Biloxi

Tower	120.75/320.1
Grnd	121.80/275.8
Apch/Dept	124.60/354.1
	127.50/287.1
	126.60/279.6
ATIS	271.8
Gull Ops	349.9

Meridian Key Field

Tower	119.80/257.8
Grnd	121.90/348.6
Apch/Dept	120.50/269.6
	124.40/323.0
	343.7

Meridian NAS

Tower	126.20/340.2
Grnd	336.4
Apch/Dept	119.20/374.9
	120.50/269.6
	120.95/276.4
	124.80/343.7
	314.8
ATIS	273.2

Meridian Bravo NAS OLF

Tower	279.2
Apch/Dept	286.4

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Visiting Holloman AFB tower one day I observed a C-5, the huge military transport, making an approach for a landing on runway 21. Until flaring for touchdown the landing appeared normal. Initial runway contact was on the nose gear, and the enormous aircraft bounced ponderously back into the air. With half of the runway still ahead the pilot elected to salvage the landing with another try. The second was an instant replay of the first, resulting in an even higher bounce. With little runway remaining the pilot had no option but to go around. Then to my astonishment down pitched the nose for still another try at landing. This time the huge machine slammed to the runway, shuddered violently and lurched to a halt dead at the end of the runway. In making a second attempt at landing the pilot's judgement was questionable, but continuing for a third endeavor was pure stupidity.

Nosewheel assemblies are not engineered to absorb landing shock, and initial runway contact on the assembly poses serious risks of structural damage. We can only speculate on the pilots reasons for these continued landing attempts. He was fortunate to escape without tragic results.

MISSOURI

Cape Girardeau
Tower 119.00
Grnd 121.60
Apch/Dept 128.05/379.2

Columbia
Tower 119.30
Grnd 121.60
Apch/Dept 120.00/248.2
118.40
ATIS 128.45

Forney Army Air Field
Tower 125.40/241.0
229.4
ATIS 110.00

Jefferson City
Tower 125.60
Grnd 121.70
Apch/Dept 120.00/248.2
118.40

Joplin
Tower 119.80/302.1
Grnd 121.60
Apch/Dept 128.60/343.9

Kansas City
Downtown
Tower 133.30/257.8
Grnd 121.90
Apch/Dept 119.00/294.7
ATIS 124.60

Kansas City Intnl
Tower 128.20/267.9
125.75
Grnd 121.80
121.65
Apch/Dept 126.60/318.1
124.70
Clrnc 135.70
ATIS 128.35

Kansas City
Richards Gebaur
Tower 124.20/236.6
Grnd 119.20/289.4
Apch/Dept 118.90/294.7

St Joseph
Rosecrans
Tower 126.90/239.0
Grnd 121.90
Apch/Dept 127.90/251.1

St Charles
Smart Field
Tower 126.30
Grnd 121.60
Apch/Dept 124.20/388.0

Spirit of St Louis
Tower 118.30/348.4
Grnd 121.70
Apch/Dept 126.70/254.3
ATIS 134.80

St Louis
Lambert
Tower 118.50/257.7
120.05/284.6
Grnd 121.90/348.6
121.65
Apch 126.50/289.1
125.15/360.6
120.05/324.1
123.70
Dept 119.15/335.5
118.95
124.90
119.75
Clrnc 119.50/363.1
ATIS 119.92/277.2
120.45

St Louis
Downtown
Tower 120.90/357.4
Grnd 121.80
Apch/Dept 126.70/254.3
ATIS 127.85

Springfield Regional
Tower 119.90/257.8
Grnd 121.90
Apch/Dept 121.10
124.95/234.2
127.50/269.4
ATIS 119.05

Whiteman AFB
Tower 125.70/255.6
Grnd 275.8
Apch/Dept 119.65/285.6

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While it appears impossible, a controller in Spokane CERAP commuted daily between his home in Boise and work place in Spokane for nearly two weeks. Moreover, he handled the commute comfortably by flying an Idaho National Guard T-33 jet trainer. As he arrived one morning he was issued holding instructions and advised to expect a 30 minute delay. Upon receipt of the holding clearance he informed the controller this would make him late for work. Our T-33 commuter was a new employee and neither the controllers nor supervisors were aware his unusual commute to work. Moving to Spokane a few days later he ended what may have been a record daily journey to work.

NEBRASKA

Lincoln Muni

Tower	118.50/253.5
	125.70
Grnd	121.90/275.8
Apch/Dept	124.80/338.3
	124.00/270.3
	128.75.346.3
Clrnc	120.70/396.0
ATIS	118.05/302.2

Grand Island

Tower	118.20/388.2
Grnd	121.90
Apch/Dept	119.40/287.9
Clrnc	126.05

Offutt AFB
Omaha

Tower	126.20/236.6
	123.70/348.4
Grnd	121.70/275.8
Apch/Dept	120.10/363.8
	124.50/263.0
	134.10/281.5
	118.00
GCA	119.10
	124.95
	135.35
ATIS	273.5

Omaha
Eppley

Tower	127.60/257.8
Grnd	121.90
	134.95
Apch/Dept	124.50/263.0
	120.10/363.8
Clrnc	119.90
ATIS	120.40

NEVADA

Fallon NAS

Tower	119.25/340.2
Grnd	382.8
Apch/Dept	126.20/360.2
Clrnc	271.5
ATIS	284.3
Desert Ctl	263.6

Reno
Cannon Intnl

Tower	118.70/257.8
Grnd	121.90/348.6
Apch	119.20/353.9
	120.80/325.8
	128.20
Dept	126.30
Clrnc	124.90/343.9
ATIS	124.35/277.2

Las Vegas
McCarran Intnl

Tower	119.90/257.8
Grnd	121.90
Apch	127.15/335.5
Dept	133.95/295.0
	125.90/387.0
Clrnc	118.00
ATIS	116.90
	125.60

North Las Vegas

Tower	125.70
Grnd	121.70
ATIS	118.05

Nellis AFB
Las Vegas

Tower	126.20/324.3
Grnd	121.80/275.8
Apch	124.95/279.7
Dept	134.10/353.6
Clrnc	120.90/289.4
ATIS	270.1

Indian Springs AF Aux

Tower	118.30/358.3
Grnd	275.8

Lake Tahoe

Tower	118.40/257.8
Grnd	121.90
Apch/Dept	127.95/316.1
	128.80/285.5

NEW HAMPSHIRE

Lebanon

Tower	128.80
Grnd	121.60
Apch/Dept	134.70/381.4
ATIS	118.65

Manchester

Tower	121.30/324.3
Grnd	121.90
Apch/Dept	124.90/305.4
	134.70/381.4
ATIS	119.55

Pease AFB

Tower	128.40/255.9
	236.6
Grnd	120.95/275.8
Apch/Dept	125.05/291.0
	395.8
Clrnc	335.8
ATIS	273.5

NEW MEXICO

Albuquerque Intnl

Tower	118.30/257.8
	120.30
Grnd	121.90/348.6
Apch/Dept	121.10/317.6
	124.40/301.5
	123.90/354.1
	127.40/316.7
Clrnc	119.20/385.6
ATIS	118.00/363.8

Farmington
Four Corners Rgnl

Tower	118.90/257.8
Grnd	121.70
Apch/Dept	134.15/343.7

Cannon AFB
Clovis

Tower	126.20/348.4
Grnd	275.8
Apch	124.00/358.3
	126.85/319.2
Dept	397.2
Clrnc	119.00/378.8
ATIS	119.10/269.9

Holloman AFB
Alamogordo

Tower	119.30/255.9
Grnd	275.8
Apch	120.60/324.3
Dept	128.10/284.0
Clrnc	289.4
ATIS	273.5

Hobbs

Tower	118.30/257.8
Grnd	121.90
Apch/Dept	133.10/385.6

Roswell Industrial

Tower	118.50/272.7
Grnd	121.90/348.6
Apch/Dept	119.60/239.0
	132.65/257.6

Santa Fe County

Tower	119.50/239.3
Grnd	121.70
Apch/Dept	132.80/299.3
ATIS	128.55

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WOLVERINE COPILOT

Immediately after WWII when I arrived in Alaska to begin my career with the CAA/FAA I was assigned to a small FSS located on the tundra about 50 miles northwest of Anchorage. In addition to four families staffing the FSS, we had neighbors just across the Skwentna River. These friends owned two airplanes which they used in their ventures as guides and trappers. They also captured and shipped animals to zoos throughout the country. Species such as wolverines were exceptionally valuable, perhaps because they were so difficult to capture. While these dynamite packages were diminutive, their ferocious temper made up for their scrawny size. Yet our trappers seemed to have exceptional success in capturing prize specimens.

One day while returning home with a wolverine in the airplane one of our trapper friends found himself in a precarious predicament. The pilot had wrapped the growling critter in a heavy woolen shirt, then once more with a thick blanket and stuffed the snarling bundle behind the passenger seat. After takeoff he continued hearing the growling wolverine. Heading for home the growls seemed to be getting louder! A glance behind the seat confirmed the pilots worst fears. The wolverine was working free and was about to upgrade his travel accomodations from economy to first class. With no place to land and still 20 miles from home, the pilot reached behind the seat attempting to contain the fearsome bundle with one hand while controlling the airplane with the other. For some time the issue seemed in doubt, yet eventually he arrived home - bundle intact, his hand unscathed and the airplane undamaged.

NEW JERSEY

Atlantic City Intnl

Tower	120.30/239.0
Grnd	121.90/284.6
Apch/Dept	124.60/385.5
	134.25/396.0
Clrnc	127.85
ATIS	108.60

Atlantic City Muni

Tower	118.90
Grnd	121.70
Apch/Dept	134.25/263.6
	124.60/385.5

McGuire AFB

Tower	119.80/255.6
	236.6
Grnd	121.80/275.8
Apch/Dept	120.00/318.2
	120.25/363.8
	127.50/259.3
	388.2
Clrnc	135.20/335.8
ATIS	110.60/297.7
Ops	122.85/265.6

Morristown

Tower	118.10/353.9
Grnd	121.70
Apch/Dept	135.35/379.9
	119.20
ATIS	124.25

Newark International

Tower	118.30/257.6
	134.05
Grnd	121.80
	126.15
Apch/Dept	128.55/379.9
	127.60
	120.15
	135.35
	119.20
Clrnc	118.85
ATIS	115.70
	132.45

Trenton
Mercer Co

Tower	120.70/257.8
Grnd	121.90
Apch/Dept	123.80/291.7
	128.40
ATIS	119.45

Teterboro

Tower	119.50
	125.10
Grnd	121.90
Apch/Dept	135.35/379.9
	119.20
Clrnc	128.05
ATIS	108.40
	114.20

Lakehurst NAEC

Tower	126.20/360.2
	340.2
Grnd	121.00/352.4
Apch/Dept	120.25/363.8
	127.50/259.3
Mntnc	236.4

NORTH DAKOTA

Bismarck

Tower	118.30/257.8
Grnd	121.90/348.6
Apch/Dept	125.60/281.5
	126.30/346.4
ATIS	119.35

Fargo

Towr	118.60/290.4
Grnd	121.90/348.6
Apch/Dept	127.70/395.9
	120.40
ATIS	124.50/271.6

Grand Forks AFB

Tower	124.90/349.0
Grnd	275.8
Apch/Dept	118.10/318.1
	371.2

Grand Forks Intnl

Tower	118.40/388.8
Grnd	121.90
Apch/Dept	118.10/371.2
ATIS	119.40

Minot AFB

Tower	120.65/253.5
	236.6
Grnd	275.8
Apch/Dept	118.50/363.8
	259.1
Clrnc	134.10/318.2

Minot International

Tower	118.20/393.1
Grnd	121.90
Apch/Dept	118.50/363.8

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USAF and Navy Rescue Airport Vehicles

During airport emergencies these frequencies are commonly used by the USAF and Navy for communicating with rescue vehicles.

USAF uses 173.5875 Navy uses 140.10 and 140.225

NEW YORK

Albany

Tower	119.50/257.8
Grnd	121.70/348.6
Apch/Dept	125.00/307.2
	118.05/226.8
	124.70
	127.15
Clrnc	127.50
ATIS	120.45

Bethpage
Grumman

Tower	121.30/340.2
	126.20
Grnd	121.90
Apch	127.40/269.0
	120.05
	134.35
	132.40
	123.70
	118.40
Dept	135.90/388.0
	134.90/396.1
	123.90
Clrnc	121.65/348.6

Binghamton

Tower	119.30/242.7
Grnd	121.90
Apch/Dept	118.60/397.2
	126.10/242.7
	133.35/372.0
ATIS	128.15

Buffalo International

Tower	120.50/257.8
Grnd	121.90
Apch/Dept	123.80/236.5
	126.50/305.4
	126.15/317.6
Clrnc	124.70/257.8
ATIS	135.35

Elmire/Corning Regional

Tower	121.10/257.8
Grnd	121.90
Apch/Dept	119.45
	118.15
	133.35/372.0
ATIS	109.65

Essex County

Tower	126.50
Grnd	121.90
Apch/Dept	135.35/379.9
	119.20

Farmingdale
Republic

Tower	118.80/229.5
	125.20
Grnd	121.60/269.6
Apch	127.40/269.0
	134.45
	132.40
	123.70
	118.40
Dept	135.90/388.0
	134.35
	123.70
Clrnc	128.25
ATIS	126.65

Islip
Long Isl/McArthur

Tower	119.30/233.2
	124.30
Grnd	121.70
Apch/Dept	120.05/367.2
	118.00
	126.95
	125.75/346.3
Clrnc	121.85
ATIS	128.45

Ithica
Tomkins Co

Tower	119.60
Grnd	121.80
Apch/Dept	120.00/257.8
	133.35/372.0

Griffis AFB
Rome

Tower	126.20/289.6
	236.6
Grnd	275.8
Apch/Dept	126.65/353.6
	118.50/363.8
	295.0
ATIS	269.9

New York
La Guardia

Tower	118.70/263.0
Grnd	121.70
	121.85
Apch	120.80
	132.70
	128.80
	127.30
	124.95
	118.00
Dept	120.40
	127.05
	124.45
Clrnc	135.20
	132.85
ATIS	127.05
	125.95

New York
Kennedy Intnl

Tower	119.10/258.3
	132.40
	123.90
Grnd	121.90/348.6
	121.65
Apch	127.40/269.0
	134.35
	132.40
	126.80
	123.70
	118.40
Dept	135.90/388.0
	134.35
	124.75
	123.70
Clrnc	135.05/348.6
ATIS	115.40
	117.70
	115.10

Niagra Falls Intnl

Tower	118.50/349.0
Grnd	121.70/275.8
Apch/Dept	126.15/317.6
Clrnc	119.25/251.1
ATIS	120.80/269.4

Newberg
Stewart Intnl

Tower	121.00/295.7
Grnd	121.90
Apch/Dept	133.10/256.9

Plattsburg AFB

Tower	120.70/255.6
	236.6
Grnd	121.80/275.8
Apch/Dept	121.10/396.1
	120.70/360.8
ATIS	388.2

Peconic River
Naval Weapons

Tower	128.65/340.2
	121.30
Grnd	121.90
Apch/Dept	120.05/367.2

Poughkeepsie
Dutchess Co

Tower	124.00/357.4
Grnd	121.80
Apch/Dept	120.20/256.9
ATIS	126.75

Rochester
Monroe County

Tower	118.30/254.3
Grnd	121.70
Apch/Dept	119.55/269.6
	120.70
	123.70/322.3
Clrnc	118.80
ATIS	110.00

Schenectady

Tower	121.30/321.1
Grnd	121.90
Apch/Dept	118.05/226.8
	307.2

Syracuse Intnl

Tower	120/30/239.0
	124.20
Grnd	121.70/348.6
Apch/Dept	118.85/285.4
	124.60
	124.20/279.6
Clrnc	125.05/398.2
ATIS	120.75

Utica
Oneida County

Tower	118.10/297.1
Grnd	121.90/241.1
Apch/Dept	126.65/353.6
	118.50/363.8
	134.10
ATIS	118.70

Westhampton Beach
Suffolk County

Tower	125.30/236.6
Grnd	121.80/225.4
Apch/Dept	120.05/367.2

Wheeler Sack AAF

Tower	126.20/241.0
Grnd	121.90/229.8

White Plains
Westchester Co

Tower	119.70/381.2
Grnd	121.80/381.2
Apch	126.40/319.8
	124.65
Dept	120.55
Clrnc	127.25
ATIS	116.60
	133.80

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Approach and Departure Control Frequencies

The approach/departure services listed in this directory may or may not originate at the location indicated. Although approach/departure control service will be active on the frequency specified, the controller might be physically located at another airport. Radar service for airports in the Dallas/Ft Worth area originate at Dallas/Ft Worth airport and identify as "Regional" Approach Control. Although channels are listed for Addison, Red Bird, Navy Dallas, Ft Worth Meacham, Carswell AFB and others, the control is being rendered from the facility at DFW airport. Yet monitoring these frequencies we could easily be led to believe the service was originating from the individual airports.

Similarly, at smaller airports with part time approach control services, those operating less than 24hrs, the Center provides approach and departure control service. When you monitor the arrival or departure channel and hear the Center on the frequency you will understand what is happening.

NORTH CAROLINA

Ashville Regional

Tower	121.10/257.8
Grnd	121.90
Apch/Dept	125.80/226.8
	124.65/351.8
	128.75.257.9
ATIS	120.20

Bogue MCALF
Cherry Point

Tower	119.50/321.8
Grnd	262.6
Apch/Dept	124.10/268.7

Charlotte/Douglas Intnl

Tower	118.10/257.8
	126.40
Grnd	121.90/348.6
	121.80
Acph	125.35/257.2
	126.15/316.7
Dept	120.50/257.2
	124.00/316.7
Clrnc	121.40/397.7
ATIS	121.15
	132.10

Cherry Point MCAS

Tower	121.30/340.2
Grnd	126.20/380.8
Apch	124.10/268.7
	119.35/374.9
Dept	134.10/278.8
Clrnc	125.95/263.6
ATIS	354.9
Base Ops	306.6

Elizabeth City
CG Air Station

Tower	120.50/355.6
Grnd	121.90
Apch/Dept	123.85/323.0

Eastern Rgnl Jet Port
Kinston

Tower	120.60/338.0
Grnd	121.90
Apch/Dept	119.70/338.6
	320.1

Fayetteville Muni
Grannis

Tower	118.30/269.2
Grnd	121.70/348.6
Acph/Dept	133.00/295.0
	127.80/393.0
	119.55/340.7
	133.85/288.3
Clrnc	118.55
ATIS	121.25

Mackall Army Air Field
Fayetteville

Tower	121.00/304.6
Grnd	* 41.75
Apch/Dept	127.80/340.7
	119.55/393.0
	132.40/346.4
Rng Ctl	246.0

New River MCAS
Cherry Point

Tower	120.00/360.2
Grnd	121.80/352.4
Apch/Dept	119.35/374.9
	362.2
ATIS	265.2
Ops	236.4

Pope AFB
Fayetteville

Tower	126.20/291.1
Grnd	134.10/275.8
Apch/Dept	119.55/393.0
	127.80/340.7
	119.55/393.0
ATIS	132.30

Raleigh-Durham

Tower	119.30/257.8
	127.45
Grnd	121.90/348.6
	121.70
Apch	118.05/307.9
	124.95/392.1
	124.80
Dept	125.30/388.0
	132.35/256.9
Clrnc	120.10
ATIS	123.80

Seymore Johnson AFB

Tower	126.25/255.6
Grnd	275.8
Apch/Dept	119.70/338.6
	123.70/320.1
Clrnc	363.8
ATIS	273.5
SOF	280.5

Simmons Army Air Field
Fayetteville

Tower	125.90/241.0
Grnd	121.90/229.4
Apch/Dept	133.20/295.0
	119.55/393.0
	133.85/288.3
ATIS	109.80

Wilmington
New Hanover County

Tower	119.90/239.3
Grnd	121.90/348.6
Apch/Dept	128.35/343.9
	118.25/276.3
	124.10
	135.50/279.6
ATIS	121.10

Winston-Salem Rgnl
Greensboro

Tower	119.10/226.3
Grnd	121.90/348.6
Apch/Dept	120.90/233.2
	126.60/322.3
	118.50/284.6
Clrnc	121.75
ATIS	128.55

Winston-Salem
Smith Reynolds

Tower	118.70/257.8
Grnd	128.25/348.6
Acph/Dept	129.90/233.2
ATIS	121.30

OHIO

Akron-Canton Regional

Tower	118.30/257.8
Grnd	121.70/348.6
Apch/Dept	125.50/226.4
	118.60/323.0
	126.40
	120.60/307.2
Clrnc	132.05
ATIS	121.05

Cincinnati
Lunken

Tower	118.70/257.8
	126.20
Grnd	121.90
Apch/Dept	121.00/350.3
ATIS	120.25

Cincinnati International
Covington, Ky

Tower	118.30/286.6
Grnd	121.70
Apch/Dept	119.70/257.2
	124.70
	121.00
	123.85
Clrnc	121.30
ATIS	135.30

Cleveland
Lakefront

Tower	124.30/319.8
Grnd	121.90
Apch/Dept	125.35/360.6
ATIS	125.25

Cleveland
Cuyahoga County

Tower	118.50
Grnd	121.80
Apch/Dept	125.35/360.6

Columbus
Bolton

Tower	119.00
Grnd	121.80
Apch/Dept	132.30/279.6
	134.35

Cleveland International
Hopkins

Tower	120.90/257.8
	126.55
Grnd	121.70
Apch	124.00/360.6
	124.50
	123.85
Dept	118.90
	118.15
Clrnc	125.05
ATIS	127.85

Columbus
Ohio State Univ.

Tower	118.80/258.3
Grnd	121.70
Apch/Dept	124.20/267.9
ATIS	121.35
AWOS	118.25

Columbus
Port Columbus

Tower	120.50/257.8
	125.40
Grnd	121.90/348.6
Apch/Dept	119.15/392.1
	132.30
	125.95
	124.20/338.8
	119.65
	118.20
Clrnc	126.30
ATIS	124.60

Columbus
Rickenbacker ANGB

Tower	126.20/348.4
Grnd	121.85/275.8
Apch/Dept	119.15/279.6
ATIS	132.10/273.5

Dayton

Tower	119.90/257.8
Grnd	121.90
Apch/Dept	118.85/327.1
	127.65/294.5
	134.45/316.7
	118.00
	126.50
Clrnc	121.75
ATIS	125.80

Mansfield
Lahm

Tower	119.80/325.8
Grnd	121.80
Apch/Dept	119.25/390.8
	127.35
	134.90/317.7
ATIS	125.30

Springfield
Beckley

Tower	120.70/383.1
Grnd	121.70/261.1
Apch	118.85/327.1
Dept	126.50

Toledo
Express

Tower	118.10/392.0
Grnd	121.90/348.6
Apch/Dept	126.10/307.0
	128.00/321.1
	123.90/379.2
Clrnc	121.75
ATIS	118.75/271.3

Wright Patternson AFB
Dayton

Tower	126.90/289.6
	236.6
Grnd	121.80/335.8
Apch/Dept	118.85/327.1
ATIS	115.20/269.9
Kittyhawk Ops	397.0

Youngstown Muni

Tower	119.50/263.0
Grnd	121.90/275.8
Apch/Dept	120.20/381.4
	126.60/322.3
	127.15
	127.50/306.3
Clrnc	125.75
ATIS	119.75

OKLAHOMA

Ardmore

Tower	118.50/257.7
Grnd	121.80
Apch/Dept	128.10/322.4

Altus AFB

Tower	126.20/255.6
Grnd	289.4
Apch	125.10/348.3
Dept	290.9
ATIS	109.80/273.5
MAC Ops	349.4

Clinton Sherman

Tower	119.60/256.9
Grnd	121.70
Apch/Dept	126.30/256.9
	128.40/290.2

Enid

Tower	118.90
Grnd	121.90
Apch/Dept	121.30/291.1
	127.80/319.1

Henry Post/Ft Sill
Lawton

Tower	126.20/229.4
Grnd	121.70/231.4
Apch/Dept	134.10/227.3
	120.55/233.2
Clrnc	118.60/248.2

Lawton Muni

Tower	119.90
Grnd	121.90
Apch/Dept	120.55/233.2

Oklahoma City
Will Rogers World

Tower	118.30/257.8
Grnd	121.90/348.6
Apch/Dept	126.65/393.1
	124.60/395.0
	124.20/336.4
	120.45/385.5
	119.30
Clrnc	124.35
ATIS	125.85

Oklahoma City
Wiley Post

Tower	126.90
Grnd	121.70/348.6
Apch/Dept	124.60/395.0
	126.65/393.1
	120.45/385.5
ATIS	113.40

Tulsa
Riverside

Tower	118.10
	119.60
Grnd	121.70
Apch/Dept	120.70/338.3
ATIS	126.50

Tulsa Intnl

Tower	118.70/257.8
	121.20
Grnd	121.90/348.6
Apch/Dept	119.10/351.8
	120.70/338.3
Clrnc	134.05/397.2
ATIS	124.90/377.2

Tinker AFB
Oklahoma City

Tower	124.45/289.6
Grnd	121.80/275.8
Apch/Dept	120.45/385.5
	124.20/336.4
	124.60/395.0
	126.65/393.1
ATIS	115.80/270.1

Vance AFB
Enid

Tower	125.45/348.4
Grnd	289.4
Apch/Dept	127.80/319.1
	369.2
	286.8
Clrnc	225.4
ATIS	115.40/271.8

University of Oklahoma
Norman

Tower	118.00
Grnd	121.60
Apch/Dept	120.45/385.5
AWOS	119.55

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After a fifteen year layoff, in 1960 I returned to flying and in the process acquired flight and instrument instructor licenses. Finding we enjoyed flying so much, we planned our vacation trip to visit relatives several thousand miles away. Arriving at our destintion, we found our in-laws anxious to fly in the old but comfortable Cessna 170. A few days later we loaded grandma and sister-in-law in the backseat preparing for a trip around the local area. Seated next to me in front was my nephew, age 11, who was having obvious difficulty containing his excitement. With seatbelts on and doors locked, I proceeded through the checklist in my most professional manner. The engine turned over briskly but failed to start. As I began to worry about running down the battery our junior airman said, "Shouldn't you turn the key on?" And of course he was right; it started immediately. It was with very red cheeks that I began taxiing for takeoff.

OREGON

Eugene
Mahlon Sweet

Tower	118.90/371.9
Grnd	121.70/269.5
Apch/Dept	125.80/291.7
	119.60/348.7
	120.20/298.9
ATIS	125.20

Klamath Falls
Kingsley

Tower	118.50/257.8
Grnd	121.90/348.6
Apch/Dept	127.60/351.7
ATIS	126.50/263.0
Base Ops	288.9

Medford

Tower	119.40/257.8
Grnd	121.80
Apch/Dept	124.30
	124.85/306.3
ATIS	127.75

Portland Intnl

Tower	118.70/257.8
Grnd	121.90/348.6
Apch/Dept	133.00/360.8
	118.10/284.6
Clrnc	119.00/318.1
ATIS	128.35/269.9

Portland
Hillsboro

Tower	119.30/239.3
Grnd	121.70
Apch/Dept	118.10/284.6
ATIS	127.65

Pendleton

Tower	118.80/257.8
Grnd	121.90
Apch/Dept	125.00/269.1

Portland
Troutdale

Tower	120.50/254.3
Grnd	121.80
Apch	118.10/284.6
Dept	133.00/360.8

Salem
McNary Field

Tower	119.10/257.2
Grnd	121.90
Apch/Dept	125.80
ATIS	124.55

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TURBULENCE

Turbulence is an unpleasant and unavoidable side effect in air travel. And knowing your crew is making every endeavor to avoid these bumps is of small comfort when your dinner tray suddenly launches itself to the cabin ceiling then empties its contents during the return trip. Turbulence is a source of anxiety for both passengers and crew, yet actual structural failure from the most extreme disturbance is as rare as an honest used car salesman.

Turbulence classifications may be determined by airspeed changes as well as vertical wind gusts. Turbulence is measured as light, moderate, or severe. Here is my favorite measure of turbulence, and one we can all appreciate.

Light turbulence - passengers are scared
Moderate turbulence - flights attendants are scared
Severe turbulence - pilots are scared

PENNSYLVANIA

Allentown

Tower	120.50/397.9
Grnd	121.90
Dept/Dept	118.20
	119.65
	124.45
Clrnc	124.05
ATIS	124.70

Erie International

Tower	118.10/257.8
Grnd	121.90
Apch/Dept	121.00
	124.65
	132.40/323.2
Clrnc	126.80
ATIS	120.35

Harrisburg Intnl

Tower	124.80/231.1
Grnd	121.70
Apch/Dept	124.10/339.3
	126.45/379.8
	118.25/247.2
ATIS	118.80

Harrisburg
Capitol City

Tower	119.50/257.8
Grnd	121.90/348.6
Apch/Dept	126.45/379.8
	124.10/339.3
	118.25/274.2
ATIS	134.95

Lancaster

Tower	120.90/251.1
Grnd	121.70
Apch/Dept	126.45/379.8

Latrobe

Tower	125.00
Grnd	121.80
Apch/Dept	121.20/299.2

Muir Army Air Field
Harrisburg

Tower	126.20/241.0
Grnd	*139.00/265.6
Apch/Dept	126.45/379.8

*Outside VHF Band

Northeast Philadelphia

Tower	126.90/349.0
Grnd	121.70
Apch/Dept	123.80/291.7
	128.40
Clrnc	127.25
ATIS	121.15

Philadelphia Intnl

Tower	118.50/263.0
Grnd	121.90/348.6
Apch	128.40/343.6
	126.60/307.2
	125.40/281.3
	127.35
Dept	124.35/320.1
	119.75/286.0
Clrnc	118.85
ATIS	133.40

Pittsburgh Intnl

Tower	119.10/236.6
	128.30
Grnd	121.90/348.6
Apch	124.15/363.8
	123.95/360.8
Dept	124.75/338.2
	118.70/337.4
	119.35/338.0
	127.95
Clrnc	126.75/305.4
ATIS	127.25
	110.00

Pittsburg
Beaver County

Tower	120.30
Grnd	121.80
Apch/Dept	124.85/338.2

Pittsburg
Alleghney County

Tower	121.10/239.0
Grnd	121.70
Apch/Dept	119.35/337.4
ATIS	120.55

Reading Muni

Tower	119.90/288.3
Grnd	121.90
Apch/Dept	119.25/257.9
	125.15
	124.10/339.3
ATIS	127.10

Williamsport
Lycoming County

Tower	119.10/257.8
Grnd	121.90
Apch/Dept	124.90/272.7

Wilkes-Barre-Scranton
International

Tower	120.10/257.8
Grnd	121.90
Apch/Dept	126.30/256.7
	124.50
	118.45/319.9
ATIS	111.60

Willow Grove NAS
Philadelphia

Tower	119.60/340.2
Grnd	121.80/380.8
Apch/Dept	123.80/291.7
	266.8
	325.2
Clrnc	128.05
ATIS	275.6
ANG Ops	343.0
AFRES Ops	351.2

RHODE ISLAND

North Kingston
Quonset State

Tower	121.20/252.9
Grnd	121.70/275.8
Apch/Dept	118.60/279.2
	123.95/307.9
ANG Ops	141.80/383.3
NG Ops	244.1

Providence
Green State

Tower	120.70/257.8
Grnd	121.90/348.6
Apch	118.60/279.2
	125.90/300.4
Dept	124.50
Clrnc	121.60
ATIS	126.65

SOUTH CAROLINA

Beaufort MCAS

Tower	119.05/340.2
	360.2
Grnd	336.4
Apch/Dept	120.00/251.7
	125.60/301.2
	ATIS 278.0
Base Ops	281.8

Charleston AFB/Intnl

Tower	126.00/239.0
Grnd	121.90/348.6
Apch/Dept	120.70/319.8
	135.80/257.1
	119.30/284.0
Clrnc	118.00/381.6
ATIS	124.75
Base Ops	349.4

Columbia Metropolitan

Tower	119.50/257.8
Grnd	121.90/348.6
Apch/Dept	118.20/338.2
	124.90/285.6
Clrnc	119.75
ATIS	120.15

Florence City/County

Tower	125.10/379.8
Grnd	121.90
Apch/Dept	118.60/341.7
	132.25/309.7
	133.40/306.3

Grand Strand

Tower	124.60/397.2
Grnd	121.80
Apch/Dept	134.05/392.0
	128.70/343.6

Greenville Downtowm

Tower	119.90/257.7
Grnd	121.70
Apch/Dept	118.80/385.4
	118.00
	128.75/257.9

Greenville
Greer

Tower	120.10/257.8
Grnd	121.90
Apch/Dept	118.80/385.4
	119.40/350.2
	120.60
	128.75/257.9
ATIS	134.25

Myrtle Beach AFB

Tower	126.20/255.9
Grnd	121.20/275.8
Apch/Dept	127.40/294.5
	134.05/392.0
	128.70/343.6
ATIS	124.50/269.9

McEntire ANGB
Sumpter

Tower	126.20/253.5
Grnd	395.8
Apch/Dept	118.85/358.3
	125.40/327.3
NG Ops	246.7

Shaw AFB
Sumpter

Tower	126.65/348.4
Grnd	126.10/275.8
Apch/Dept	118.85/358.3
	125.40/327.3
Clrnc	121.80/289.4
ATIS	270.1

SOUTH DAKOTA

Ellsworth AFB
Rapid City

Tower	126.20/253.5
	236.6
Grnd	275.8
Apch	119.50/271.3
	125.30
Clrnc	121.10/289.4

Sioux Falls
Joe Foss

Tower	118.30/257.8
Grnd	121.90/348.6
Apch/Dept	126.90/267.9
	125.80/353.6
	132.10/317.4
ATIS	126.60

Rapid City
Regional

Tower	118.70/257.8
Grnd	121.90
Apch	119.50/271.3
	125.30/396.0

TENNESSEE

Bristol Johnson
Kingsport Tri-Cities

Tower	119.50/257.8
Grnd	121.70/348.6
Apch/Dept	118.40/349.0
	125.50/317.5
	119.25
	132.90/319.9
ATIS	118.25

Chatanooga
Lovell

Tower	118.30/257.8
Grnd	121.90/348.6
Apch/Dept	119.20/321.2
	125.10/379.1
	132.05/353.8
	126.50
Clrnc	120.95/348.6
ATIS	119.85

Knoxville
McGhee-Tyson

Tower	118.70/257.8
Grnd	121.90/348.6
Apch/Dept	123.90/353.6
	118.00/360.8
	120.65
	125.05
Clrnc	121.65
ATIS	128.35

Memphis International

Tower	118.30/257.8
	119.70
Grnd	121.90
	121.65
Apch	119.10/291.6
	125.80/338.3
	126.05
Dept	124.65/284.7
	124.15/313.2
Clrnc	125.20
ATIS	119.45
	121.00

Memphis NAS

Tower	120.25/340.2
	360.2
Grnd	126.20/382.8
Apch	119.10/291.6
	125.80/338.3
Dept	124.15/313.2
	124.65/284.7
ATIS	374.8
Base Ops	274.5

Nashville
Metro

Tower	118.60/257.8
Grnd	121.90/348.6
Apch	120.60/388.0
	124.00/360.7
Dept	118.40
	119.35
Clrnc	126.05
ATIS	120.00

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EASTERN AIRLINES COMMUNICATIONS NETWORK

Eastern Airlines operates a communications network similar to ARINC providing identical services. You will find the Eastern network operating in the same band segment from 128.80 through 132.00mhz. Operating procedures are identical making it very difficult to distinguish between Eastern and ARINC stations.

TEXAS

Abilene

Tower	120.10/257.8
Grnd	121.90
Apch/Dept	124.10/338.3
	125.00
ATIS	118.25

Amarillo International

Tower	118.30
Grnd	121.90
Apch/Dept	124.80/290.3
	119.50/307.0
	121.15
	127.85/351.7
ATIS	118.85

Austin
Robert Mueller

Tower	121.00/355.1
Grnd	121.90/348.6
Apch/Dept	124.90/317.6
	118.15/306.2
	119.00/362.3
	118.80/363.8
Clrnc	125.50
ATIS	119.20

Bergstrom AFB
Austin

Tower	126.20/255.6
Grnd	121.70/372.8
Apch/Dept	118.80/363.8
	134.10
	119.00/362.3
	124.90/306.2
Clrnc	335.8
ATIS	270.1

Beaumont

Tower	119.50/251.1
Grnd	121.90
Apch/Dept	121.30/322.3
	124.85/251.1
	133.80/351.8
Clrnc	121.75
ATIS	126.30

Biggs Army Air Field
El Paso

Tower	126.20/300.1
Grnd	121.60/237.6

Biggs Contd.

Apch/Dept	124.15/307.0
	119.70/353.5
	121.30/263.0
Clrnc	125.00/379.1

Brownsville
Rio Grand Valley

Tower	119.30/320.5
Grnd	121.70
Apch/Dept	120.70/257.6
	128.30/291.6
ATIS	124.85

Brownsville Intnl

Tower	118.90/257.6
Grnd	121.90
Apch/Dept	119.50/239.3
	134.70/263.1
ATIS	128.55

Cabaniss NALF
Corpus Christi

Tower	126.20/299.6
Apch/Dept	120.90/363.1
	132.25/319.8

Carswell AFB
Ft Worth

Tower	119.80/255.9
Grnd	121.85/275.8
Apch/Dept	120.50/309.8
	133.15/227.8
ATIS	271.6

Chase Field NAS
Corpus Christi

Tower	126.20/350.8
Grnd	336.4
Apch	134.10/264.2
Dept	121.30/337.8
Clrnc	312.4
ATIS	282.0

College Station

Tower	118.50/257.8
Grnd	121.70
Apch/Dept	120.40/394.1
ATIS	126.85

Corpus Christi
Seaplane Base

Tower	126.20/340.2

Corpus Christi Intnl

Tower	119.40/257.8
Grnd	121.90/348.6
Apch/Dept	120.90/363.1
	124.80/385.6
	125.40
Clrnc	118.55
ATIS	126.80

Corpus Christi NAS

Tower	126.20/340.2
Grnd	135.30/348.0
Apch	120.90/363.1
	125.40/385.6
Dept	307.9
Clrnc	314.8
ATIS	*138.60/284.2

*Outside VHF Band

Dallas
Addison

Tower	121.10
Grnd	121.60
Apch	123.90/252.9
Dept	124.30/225.7
Clrnc	119.55
ATIS	126.80

Dallas
Redbird

Tower	120.30/257.8
Grnd	121.70
Apch	123.90/252.9
Dept	125.20/372.1
Clrnc	125.45
ATIS	126.35

Dallas
Love

Tower	118.70/239.3
Grnd	121.75/348.6
Apch	125.20/372.1
	124.30/225.7
Dept	118.55
Clrnc	120.00
ATIS	120.15

Dallas/Ft Worth Rgnl

Tower	126.55/308.2
	124.15
Grnd	121.65/348.6
	133.15
	121.80
Apch	119.05/397.2
	119.40
	125.80/256.7
Dept	118.55/322.1
	127.75/364.0
	124.45/227.8
Clrnc	127.50/348.6
	128.25
ATIS	134.90
	135.50

Dallas NAS

Tower	126.20/340.2
Grnd	134.10/382.8
Apch	123.90/252.9
	125.20/372.1
	124.50/227.8
Dept	127.75/364.0
ATIS	278.0

Dyess AFB
Abilene

Tower	126.20/295.7
Grnd	275.8
Apch/Dept	124.10/338.3
	121.30/322.3
	126.50/379.1
	127.45/269.4
ATIS	385.7

El Paso International

Tower	118.30/257.8
Grnd	121.90/348.6
Apch	124.15/307.0
	119.70/353.5
	119.10
Dept	119.70/263.0
Clrnc	125.00/379.1
ATIS	120.00/254.3

Ft Worth
Meacham

Tower	118.30/257.8
	120.90
Grnd	121.90
Apch/Dept	118.10/379.9
	120.50/227.8
ATIS	120.70

Goliad NALF
Corpus Christi

Tower	126.20/345.2
Grnd	355.8
Apch/Dept	121.30/264.2

Gray Army Air Field
Killeen/Ft Hood

Tower	119.65/229.6
Grnd	133.85/225.4
Apch/Dept	118.00/244.0
	119.65/229.6
Clrnc	118.60/241.0
Flt Flw *	143.10/357.9
ATIS	111.80

Houston
Ellington

Tower	126.20/253.5
Grnd	121.60/275.8
Apch/Dept	127.25/284.0
	124.35
	119.70
	123.80/257.7
	120.80/284.0
ATIS	109.40/269.9

Houston Intercontinental

Tower	118.10/290.2
	127.25
Grnd	121.70
Apch	124.35/307.1
	127.25/379.1
Dept	133.60/257.7
	119.70/396.0
Clrnc	128.10
ATIS	124.05

Houston
Hobby

Tower	118.70
Grnd	121.90
Apch	120.05/379.1
	124.35/307.1
	120.80/284.0
Dept	133.60/257.7
	120.80/284.0
	119.70/396.0
Clrnc	125.45
ATIS	124.60

Longhorn Aux Lndg Strip

Tower	*143.35/237.4

*Outside VHF Band

Houston
Hooks

Tower	118.40/393.1
Grnd	121.80/348.6
Apch/Dept	123.80/290.2
Clrnc	119.45
ATIS	124.95

Kelley AFB
San Antonio

Tower	124.30/320.1
Grnd	121.80/289.4
Apch	118.05/353.5
	125.10/289.2
	127.10/307.0
Dept	125.70/381.4
ATIS	113.80/273.5
AFRES	143.80/252.1

Kingsville NAS
Corpus Christi

Tower	126.20/346.0
Grnd	352.4
Apch	119.90/383.6
Dept	305.2
Clrnc	328.4
ATIS	276.2

Laredo International

Tower	120.10/257.9
Grnd	121.80
Apch/Dept	127.80/307.2

Laughlin AFB
Del Rio

Tower	126.20/396.0
Grnd	275.8
Apch	119.60/259.1
	125.75/346.4
Dept	264.8
Clrnc	335.8
ATIS	114.40/269.9

Longview
Gregg County

Tower	119.20/257.8
Grnd	121.60
Apch/Dept	118.25/270.3
	125.30/270.3
	128.70/269.2
ATIS	119.65

Lubbock International

Tower	118.80/239.3
Grnd	121.90/348.6
Apch/Dept	118.10/351.8
	119.90/335.6
Clrnc	125.80
ATIS	125.30

Majors
Terrell

Tower	121.30/383.1
Grnd	121.70/335.8
Acph/Dept	127.60/254.3

McAllen

Tower	118.50/276.3
Grnd	121.90
Apch/Dept	121.00/276.3
	128.30/291.6
ATIS	128.50

Midland Regional

Tower	118.70/257.8
Grnd	121.90/348.6
Apch/Dept	124.60/372.1
	121.10/290.4
Clrnc	118.05
ATIS	126.80

Orange Grove NALF
Corpus Christi

Tower	126.20/344.4
Apch	119.90/383.6
Dept	305.2
ATIS	265.2

Randolph AFB
San Antonio

Tower	120.50/258.3
Grnd	134.05/275.8
Apch	124.45/392.1
	125.10/353.5
Dept	125.70/381.4
Aero Club	123.30

Randolph (Hangover)
(Trng Rnwy)

Tower	128.25/291.1
Grnd	124.75/316.8

Reese AFB
Lubbock

Tower	126.20/291.1
Grnd	275.8
Apch	118.10/351.8
	119.90/335.6
Dept	123.75/269.2
T-37 Ops	287.6
T-38 Ops	289.1

San Angelo

Tower	118.30/257.8
Grnd	121.90/348.6
Apch/Dept	119.70/354.1
	126.15/295.0
ATIS	128.45

San Antonio
Stinson

Tower	118.20/379.9
Grnd	121.70
Apch/Dept	125.70/381.4

San Antonio Intnl

Tower	119.80/257.8
Grnd	121.90/348.6
Apch	127.10/289.2
	125.10/307.0
Dept	125.70/381.4
Clrnc	126.70
ATIS	118.90
	135.30

Tyler
Pounds

Tower	120.10/257.8
Grnd	121.90
Apch/Dept	124.10
	135.25/265.1
ATIS	126.25

Waco
Madison Cooper

Tower	135.20/252.8
Grnd	121.90
Apch/Dept	119.30/363.0
	125.40
	133.30/269.4
ATIS	123.85

Waco TSTI

Tower	124.00
Grnd	121.70
Apch/Dept	119.30/363.0
	133.30/269.4

Wichita Falls Muni
Sheppard AFB

Tower	119.75/272.6
	125.50
Grnd	121.90/289.4
Apch	118.20/308.6
Dept	120.40/292.3
Clrnc	121.20/289.0
ATIS	132.05/269.9

Helicopter Airports
Dallas/Ft Worth

Blue Mound	123.55
Hurst	123.35
Arlington	123.20
Grand Prarie	123.05

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In the early 1970s residents of Portola Valley, a high affluent suburb of South San Francisco, were outraged by the noise being inflicted on them by San Francisco Airport. To be expected, opinions voiced by these wealthy residents of this fashionable community received widespread attention in the newspapers and on TV. One day a departing airline pilot surveyed Portola Valley below him with its estates, swimming pools, tennis courts and trappings of wealth then asked, "Who can afford to live in this neighborhood?" answering immediately the controller responded "PILOTS."

UTAH

Hill AFB
Ogden

Tower	126.20/289.6
	236.6
Grnd	121.60/275.8
Apch/Dept	121.10/301.5
Clrnc	124.10/335.8
ATIS	396.0
419th Ops	252.1

Michael Army Air Field
Dugway

Tower	126.20/248.2
	241.0
Clover Ctl	134.1/301.7

Ogden

Tower	118.70/324.1
Grnd	121.70
Apch/Dept	121.10/301.5
ATIS	125.55

Salt Lake City Intnl

Tower	118.30/257.8
	127.30
Grnd	121.90/348.6
Apch/Dept	120.90/257.2
	121.10/301.5
	118.85/284.6
	124.30/322.3
	125.70
Clrnc	127.30/348.6
ATIS	124.75

VERMONT

Burlington

Tower	118.30/257.8
Grnd	121.90/348.6

Burlington Contd

Apch/Dept	121.10/396.1
ATIS	123.80/269.9

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LEARNING FROM OUR MISTAKES

Aircraft accidents are big news. Accidents are investigated, studied, analyzed, and sometimes simulated. By doing so investigators determine the sequence of events leading to the accident, trying to learn exactly what happened, who was a fault and the primary and contributing causes. Where these can be identified and rectified, similar accidents should be avoidable in the future.

Yet similarities occur that are truly incredible. One of these happened on a winter day in Salt Lake City which often means snow and ice. Runways had been cleared of snow but a thin layer of ice coated the asphalt. Landing in a cross wind that was normally of little concern to the pilot, icing on the runway made directional control of the B-727 extremely difficult. As the aircraft slowed, the cross wind caused the aircraft to drift from the runway into deep snow. On leaving the runway the right main landing gear collapsed, rupturing the fuel tank which erupted in fire. Although the structure remained intact, evacuation was slow and the ensuing fire caused many passengers to lose their lives.

Several years later the same airline again operating a B-727, landed on the same runway, in identical weather conditions. And as before the aircraft drifted off the runway when it became impossible to maintain directional control. As though it were an instant replay, the right main landing gear collapsed as the B-727 left the runway for deep snow. However, this time fate intervened. No fire and no loss of life!

VIRGINIA

Blackstone AAF

Tower	126.20/214.0
Apch/Dept	118.75/353.9

Charlottesville
Albermarle

Tower	124.50/242.7
Grnd	121.90
Apch/Dept	124.25/284.7

Felker Army Air Field
Norfolk

Tower	126.30/248.2
	241.0
Grnd	121.35/229.4
Apch/Dept	125.70/395.8

Langley AFB
Norfolk

Tower	125.10/253.5
Grnd	121.70/275.8
Apch/Dept	126.05/372.1
	127.90/249.9
	124.90/379.1
	125.70/395.8
Clrnc	120.30/271.3
ATIS	270.1

Lynchburg Muni

Tower	120.70/257.8
Grnd	121.90
Apch/Dept	125.75/317.7
ATIS	119.80
AWOS	119.80

Newport News

Tower	118.70/280.1
Grnd	121.90/348.6
Apch/Dept	125.70/395.8
ATIS	128.65

Norfolk International

Tower	120.80/257.8
Grnd	121.90
Apch/Dept	118.90/257.3
	125.20/389.9
Clrnc	118.50
ATIS	127.15
	127.35

Norfolk NAS

Tower	124.30/340.2
Grnd	121.80/352.4
Apch/Dept	118.90/257.3
	125.20/389.9
Clrnc	120.70/348.0
ATIS	118.42/282.0
GCA	119.20/346.8

Oceana NAS
Norfolk

Tower	126.20/360.2
	340.2
Grnd	336.4
Apch/Dept	119.60/279.2
	126.05/372.1
	125.20/389.9
	374.8
Clrnc	300.4
ATIS	315.4
Base Ops	284.9
GCA	134.10/322.0

Quantico MCAF
Washington

Tower	118.60/360.2
Grnd	340.2
Apch/Dept	118.95/257.2
	126.20/312.2
ATIS	255.0

Richmond International

Tower	121.10/257.8
Grnd	121.90/348.6
Apch/Dept	119.90/307.2
	126.40/319.8
	126.80/398.2
	118.20
Clrnc	127.55/348.6
ATIS	119.15/266.6

Roanoke Regional

Tower	118.30/257.8
Grnd	121.90
Apch/Dept	126.90/339.8
	119.05
	125.75/353.9
Clrnc	119.70
ATIS	118.65

Wallups Island NASA

Tower	126.50/394.3
Apch/Dept	132.55/353.6
	127.95/314.0
	134.10
Clrnc	121.70

Webster NAS OLF

Tower	126.30/358.0
Apch/Dept	120.05/281.8

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ACCIDENT INVESTIGATION FREQUENCIES FAA AND NTSB

By permission of Ken Winters, Editor and Publisher of D/FW Frequency List here are the channels used by both agencies.

NTSB	165.175	165.75	166.175	162.325	172.60
FAA	172.15	172.225	162.25	162.275	162.30

WASHINGTON

Everett

Tower	121.30/229.4
	120.20
Grnd	121.80/242.1
Apch/Dept	128.50/306.9
ATIS	128.65

Fairchild AFB
Spokane

Tower	126.20/289.6
Grnd	275.8
Apch/Dept	124.30/384.9
	124.70/263.0

Gray Army Air Field
Tacoma

Tower	126.20/242.4
	241.0
Grnd	121.90/229.5
Apch/Dept	125.40/391.9
Flt Flwg	*141.50/393.3
ATIS	124.65/248.2

McChord AFB
Tacoma

Tower	124.80/259.3
Grnd	121.65/275.8
Apch/Dept	125.40/391.9
ATIS	109.60/270.1

Moses Lake

Tower	118.10/257.8
	128.00
Grnd	121.70
Apch/Dept	126.40/385.5
	126.10/291.6
ATIS	119.05

Olympia

Tower	124.40/233.2
Grnd	121.60
Apch/Dept	120.10/290.9

Pasco
Tri Cities

Tower	118.20/323.3
Grnd	121.80
Apch/Dept	125.00/269.1
Clrnc	121.00
ATIS	125.65

Renton
Seattle

Tower	124.70/256.9
Grnd	121.60/256.9
Apch/Dept	119.20/284.7
	120.40/385.2
	123.90/338.2
	119.50
ATIS	126.95

Seattle
Boeing Field

Tower	120.60/257.8
	118.30
Grnd	121.90
	126.40
Apch/Dept	119.20/284.7
	120.40/385.2
	123.90/338.2
	119.50/263.1
Clrnc	118.90
ATIS	127.75

Seattle-Tacoma Intnl

Tower	119.90/239.3
Grnd	121.70
Apch/Dept	119.20/284.7
	120.40/385.2
	119.50/263.1
	123.90
Clrnc	128.00
ATIS	118.00

Yakima Firing Center

Tower	126.20/241.0

Spokane
Felts Field

Tower	119.00/241.0
Grnd	121.70
Apch/Dept	124.70/263.0
	372.9
ATIS	120.55

Spokane International

Tower	118.30/257.8
Grnd	121.90/348.6
Apch/Dept	124.70/263.0
	124.30/384.9
	119.90/372.9
Clrnc	127.55
ATIS	127.80/269.9

Tacoma Narrows

Tower	118.50/241.2
Grnd	121.80
Apch/Dept	120.10/290.9
ATIS	124.05

Walla Walla

Tower	118.50/289.4
Grnd	121.70
Apch/Dept	125.00/269.1

Whidbey Island NAS

Tower	126.20/340.2
	126.85/360.2
Grnd	121.75/336.4
Apch/Dept	118.20/286.0
	120.70/270.8
Clrnc	124.15/380.8
ATIS	280.3

Yakima Air Terminal

Tower	118.40/257.8
Grnd	121.90/348.6
Apch/Dept	123.80/393.1
	132.65
ATIS	125.25

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Years ago a controller at McChord AFB, Wash. was guiding an F-102 on a GCA approach in weather conditions for which the Pacific Northwest is famous, rain and fog. As the aircraft neared the runway, a jester prodded the GCA controller in the ribs, realizing he was very ticklish. The ensuing scream sent the F-102 straight off the top of the scope. We can only speculate on the appalling thoughts that went through the pilots mind when he heard the shriek. We can safely surmise that none of them were comforting.

WEST VIRGINIA

Charleston
Yaeger

Tower	125.70/257.8
Grnd	121.80/348.6
Acph/Dept	119.20/259.1
	124.10
	128.50
Clrnc	118.55
ATIS	127.60

Clarksburg
Benedum

Tower	126.70/252.9
Grnd	121.90
Apch/Dept	119.60/280.1
	121.5
	125.10/239.3

Huntington

Tower	118.50/257.8
Grnd	121.90
Apch/Dept	120.90
	119.75
Clrnc	118.05
ATIS	125.20

Lewisburg

Tower	118.90
Grnd	121.90
Apch/Dept	134.40/353.9
	125.75/317.7
Clrnc	120.85

Martinsburg

Tower	124.30/236.6
Grnd	121.80/275.8
Apch/Dept	128.75/296.2
	126.10/384.9

Morgantown

Tower	120.00/257.8
Grnd	121.70
Apch/Dept	121.15/280.1
	125.10/239.3

Parkersburg

Tower	123.70/257.8
Grnd	121.70
Apch/Dept	125.55/398.9
ATIS	124.35

Wheeling

Tower	118.10/257.8
Grnd	121.90
Apch/Dept	127.95/388.0

WISCONSIN

Appleton

Tower	119.60
Grnd	121.70
Apch/Dept	126.30/338.2
	125.55/370.9

Green Bay

Tower	118.70/257.8
Grnd	121.90
Apch	119.40/338.2
Dept	126.55/257.8
	125.55/370.9
Clrnc	121.75
ATIS	124.10

Janesville

Tower	118.80/397.2
Grnd	121.90
Apch/Dept	126.00/327.0
	133.00/379.2
ATIS	128.25

La Crosse

Tower	124.30/248.2
Grnd	121.80
Apch/Dept	128.60/363.0
ATIS	124.95

Madison

Tower	119.30/257.8
Grnd	121.90/348.6
Apch	120.10/350.3
	124.00/396.0
Dept	126.85/318.1
	133.60/269.4
Clrnc	121.62
ATIS	124.65/278.3

McCoy Army Air Field

Tower	124.60/241.0
	229.4
Apch/Dept	128.60/363.0

Milwaukee
Mitchell

Tower	119.10/325.8
Grnd	121.90/348.6
Apch	118.00/379.8
	126.50
	127.85
Dept	125.35/379.8
	119.65
Clrnc	120.00
ATIS	126.40

Milwaukee
Timmerman

Tower	120.50
Grnd	121.70
Apch/Dept	125.35/307.0
ATIS	128.30

Milwaukee
Waukeshaw County

Tower	123.70
Grnd	121.60
Apch/Dept	128.70/307.0

Oshkosh

Tower	118.50/257.6
Grnd	121.90
Apch/Dept	127.50/306.3
ATIS	125.80

Volk ANGB
Dells

Tower	126.20/236.6
Grnd	275.8
Apch/Dept	125.60/307.1

WYOMING

Casper
Natrona County

Tower	118.30/257.8
Grnd	121.90
Apch	120.65/257.8
Dept	119.00
	135.60
ATIS	126.15

Cheyenne Intnl

Tower	118.70/257.8
Grnd	121.90/348.6
Apch/Dept	120.00/269.0
	133.00/281.5

Gilette
Campbell County

Tower	118.50
Grnd	121.70

WASHINGTON DC METRO AREA

Andrews AFB

Tower	118.40/289.6
Grnd	121.80/275.8
Apch	124.00/294.5
Dept	125.65/269.5
Clrnc	127.55/393.1
ATIS	113.10/251.05
GCA	125.35/335.5
	128.35
SAM CP	*141.55/378.1

Davison Army Air Field

Tower	126.30/229.4
Grnd	121.90/245.2
Apch	119.85/322.3
Dept	118.10/343.7
Clrnc	245.2
VIP Ops	*139.40

Washington Dulles

Tower	120.10/388.0
Grnd	121.90/348.6]
Apch	126.10/384.9
	124.65/390.9
	120.45
	125.80
Dept	126.65/350.2
	125.05
Ramp Ctl	129.55
Clrnc	127.35/348.6
ATIS	134.85
[Special Use Channels]	
	131.725
	131.775
	460.875

Whitehouse Helipad
375.00

Washington National

Tower	119.10/257.6
Helios	120.75
Grnd	121.70
Apch	118.30/306.3
	124.20/338.2
	118.95/294.5
	124.00/322.3
Dept	126.55/396.1
	118.10/343.7
Clrnc	128.25
ATIS	132.65
AWOS	128.80
[Special Use Channel]	
	121.05

Pentagon Heliport

Tower	*143.10/231.3

*Outside VHF Band

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UNPUBLISHED RADIO FREQUENCIES

Large ATC facilities associated with major airports often have radio channels that are not published. These are used in circumstances outside the realm of routine air traffic control. Sometimes they are utilized for flight checking navigation aids and radar and on occasion during highjack situations.

Similarly, frequencies in the 128.50 through 132.00 band not only serve as ARINC and airline company channels but may be put to other use as well. Dallas/Ft Worth Regional Airport has at least three frequencies dedicated to ramp control. This is not a function of the FAA a but service by aircarriers to control aircraft movement on the ramp and at their gates. Look for these channels at - Los Angeles, Atlanta, Chicago, New York, Miami, San Francisco and other large hub airports.

WAR STORIES

Most of the accounts, stories, incidents, accidents, etc. are from first hand experiences. They are included for your enjoyment and not intended to embarrass anyone except perhaps the author. With the passing years some details fade from memory. Yet the basic facts seem to remain fresh in our memory, sometimes too fresh.

Airshows Relived

My first exposure to the air show experience was in the mid 1930s with Tex Rankin and his barnstormers. It was a spellbinding performance. Tex flew a sequence of breath taking maneuvers in his Ryan-ST that seem to border on the impossible. Most fascinating were a series of slow rolls flown about 100 ft above the ground. Equally thrilling was the pilot who snatched a handkerchief with a hook on his wingtip from a 20 foot pole while FLYING INVERTED! From that day I was an ardent advocate of aviation; and it perseveres to this day.

Reno Air Races 1966

Thirty years later as an FAA employee, I was appointed monitor for the Reno Air Races, and for the Las Vegas Exposition of Flight the next year. Then the Air Traffic Division wrote waivers to Federal Air Regulations and monitored the demonstrations. This was the first year the Reno Races were flown from Stead AFB. Duane Cole, the well known aerobatic pilot, was race manager. Working with Duane my job was to evaluate the race course, making sure races and aerial demonstrations would be flown a safe distance from grandstands and spectator areas. Having written the waiver for the race and associated air shows, it was also my duty to monitor these activities to enforce special provisions of the waiver.

After the show got underway the midget racers were magnificent as they streaked around the course. They flew just above the ground, in vertical banks, as they cleared the pylons. These were followed by the unlimiteds featuring P-51s, F-6Fs, F-8s, Sea Furys and other splendid machines. They raced the same course, at higher speeds but still just above ground level! During preliminary heats it was apparent these high performance racers were flying larger circuits than I had anticipated. The designed 1500ft safety zones were now approaching 1000ft.

Until this time I had been enjoying myself in the role of spectator. When the unlimiteds thundered around the course, it shocked me into realizing it was my duty to halt the race if safety margins were being compromised or terms of the waiver were being violated. And while margins were being trimmed, I knew they were safe.

Several days passed while preliminary heats were contested. Then on the final day came the main event. Nearing conclusion, patterns expanded as speeds increased and pilots fiercely jockeyed for position. Most were still flying just above the ground. On the next to last lap, the entire contingent flew directly over me, the spectator area and the grandstand. The moment of truth had arrived - STOP the race. But before the order could be executed, the race was over.

Las Vegas Exposition of Flight 1967

The Las Vegas Exposition was also memorable affair. Lt Col Ralph Maglione, Commander of the Thunderbird team, insisted the performance be featured on the NE/SW runway. While providing excellent viewing it placed spectators too close to the flying. Having escaped a potentially catastrophic ordeal at Reno the year before, there was no way could I approve the demonstration on this runway. Several days later, as we viewed the show, it was clearly the appropriate decision. As always the performance was sensational and clearly visible to everyone in attendance.

During the Thunderbird exhibition I was seated with Col Maglione. To my astonishment he arrived with a portable UHF transceiver about the size of a small suitcase. During the show he used the transceiver to direct comments to the team. Among the few words I caught were terms like "Close it up" and similar expressions. Even today, I'm astounded an observer on the ground would direct commentary to the team while the show was in progress. However, Col Maglione had been recently promoted and would soon be leaving for a new assignment. The new commander, a major was flying with the team and this may account for commentary by radio from the reviewing stand.

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PARTING THE RED SEA AND GREY SKIES

Most of us remember the Bible story of Moses parting the Red Sea permitting the Israelites to escape from the Egyptians. Similar miracles, although less spectacular, have been witnessed in more recent times.

To cite an example: The new Commanding Officer at Lemoore NAS had been on station but a few months when he learned a Rear Admiral was arriving for an official visit. Located in the heart of the San Joaquin Valley, Lemoore's winter weather is known for thick, Tule fog. And it was on such a day the Admiral was arriving.

As the Navy Convair approached Lemoore NAS with its distinguished visitor, the weather showed no hint of improving. Diversion to an alternate airport appeared certain. Keenly aware of the situation, the Captain proceeded to the Aerology Office for a first hand evaluation of conditions. Following a brief consultation with the Aerologist, a special report was issued proclaiming a ceiling of 200 feet and visibility of 1/2 mile. This was a most timely report, for it heralded unforecast weather improvement and provided minimum ceiling and visibility values required for the approach and landing.

JUST AS MOSES HAD PARTED THE RED SEA THE CAPTAIN OPENED THE SKIES.

Thirty minutes and three GCA approaches later the pilot had failed to sight the runway or its high intensity lighting system. A fourth approach terminated in a successful landing, a living testimonial to the pilot's skill and the GCA controller's competence. Immediately after the Convair landed a special weather report proclaimed ceiling and visibility were once again at zero/zero closing the airport to further traffic.

Although these most timely weather changes might appear to be modern day miracles, the ceiling and visibility values had remained at zero/zero

throughout the proceeding. Using the prestige of his rank, the Captain had persuaded the aerologist to report conditions above their actual values. For the Captain, this was a serious error in judgement which jeopardized the crew, the Admiral and the aircraft. Soon afterward he was releived of his command, and surrendered any opportunity he may have had for promotion to flag rank.

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THROUGH THE MOUNTAINS

The following story was related to me by the Flying Safety Officer at Cannon AFB, NM during 1979. While I can't confirm or deny the facts of the account, from my long association with many individuals in the Air Force, I have found that incidents such as these are nearly always factual.

Cannon AFB is one of several bases that is home to the F-111. As you may recall this airplane was designed many years ago to serve as a fighter for both the Navy and Air Force. The Navy tried it and rejected it. The Air Force bought it. Although the F-111 is not quite as large as others fighters such as the F-15, it is an extremely heavy aircraft and never really proved effective as a fighter. Although I'm not sure the term Aardvark is the official designation for the F-111, it is most surely appropriate. The USAF decided if it wouldn't work as a fighter, it might do as a bomber and designated it the FB-111. In this role it has worked reasonably well, and as you may recall it was used in the raid on Libya in retaliation against terrorist activities.

As a low level bomber, the FB-111 directs training efforts to flying low level routes. And to their credit and courage the FB-111 crews fly these low level missions day and night and in the clear as well as on instruments. Terrain following radar not only provides navigation guidance, but also climbs and descends the aircraft to maintain a specified distance above the ground be it level or mountainous. And while the F-111 had many problems soon after its acceptance, few if any have developed as a result of its terrain following radar. Crews have accepted it and used it in most unforgiving circumstances.

The safety officer and his navigator/weapons director were making a low level night flight through the mountains of New Mexico and all seemed well. At night flying through mountains the crew must devote total attention to the radar display so they can fly the desired route. Yet out of the corner of his eye, the pilot caught a glimpse of red flashing on white off his left wing. At first he thought it was his rotating beacon reflecting off nearby clouds. Then realizing the sky was clear, he left his radar screen for a moment to look outside to try to determine what it was he was seeing. Within seconds he came to the horrifying realization what he had observed was snow. Although they were precisely on their planned route they were flying through a canyon, and snow on the hillside was reflecting from the rotating beacon. The pilot estimated the distance at less than 100ft, within system tolerance and working as designed. And while his heartrate soared for a few minutes, he immediately went back to his radar display where he felt safe and comfortable.

BALLOONS

While driving from Phoenix to Los Angeles several years ago I observed a balloon approaching to land in a field ten miles west of Phoenix. As he drifted east at about ten miles an hour, the pilot realized he was headed directly for a huge set of high voltage lines. Even to me it was apparent he would not land before reaching the cables. Recognizing the imminent peril, the pilot ignited the burner to reverse his descent and climb above the high voltage lines. But he delayed too long in making this decision and the bag and gondola struck the high voltage cables. Although injured the pilot was fortunate to escape with his life.

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RADIO DISTRACTIONS

As you know an ATC radio channel can be so busy it is difficult for the pilot to contact the controller. Moreover some pilots find the constant chatter irritating and distracting. A pilot using our airport discovered how to beat the system. He would monitor the tower frequency until receiving landing clearance, then he reduced the volume until it no longer disturbed his concentration. One busy day he surveyed the runway ahead after landing and was surprised to discover a Boeing 707 crossing his runway a few hundred feet ahead. Startled at first, he demanded to know if the Boeing 707 had been cleared across his runway. Yes, responded the controller and you were instructed to hold short of taxiway Alpha. The pilot replied he hadn't received this clearance because his radio volume was turned down. This was a poor excuse, because regulations require pilots to monitor the appropriate ATC channel on the ground and in flight. The pilots license could have been suspended for this violation.

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WEATHER RADAR AVOIDANCE

When radar was installed in the Phoenix ARTC Center, I was a newly promoted supervisor. With previous radar experience, I was assigned responsibility for training the controller staff and developing local radar procedures. As a good radar controller, I was always ready to demonstrate my skills when the opportunity presented itself. And this opportunity arrived when a very heavy squall line roared through Phoenix. One of my controllers was having trouble vectoring an Air Force C-97 through the line of storms. The C-97 had flown up to the storm cells, taken a good look and reversed course. I told the controller to step aside, and observe closely as I took the C-97 through the weather. Apparently my confidence convinced the pilot I could take him safely through the squall line, and I issued a series of headings to avoid major precipition areas. Some ten minutes later the aircraft cleared the storm and emerged in smooth, clear weather.

After safely negotiating severe weather, most pilots usually express some appreciation for the service. When these comments failed to materialize after a few moments, I offered the pilot a cue by asking "How was the ride through the front?" Then to my everlasting embarrassment came the reply, "If I had known then what I know now, we would never have gone through the front!" The pilot continued by saying it was an extremely turbulent ride and a frightening experience. From that day forward, weather vectoring techniques were approached much more cautiously by me and my controllers.

AUTHOR

As an employee of the CAA/FAA for 35 years, the author was stationed in Texas, Colorado, Alaska, North Dakota, New Mexico, Arizona, California, Ohio, and Utah. During the Viet Nam conflict he was a staff member of the 314th Air Division in Korea serving as the Air Traffic Control Advisor.

During early years with the CAA/FAA he was a controller in various ATC facilities. Among these were low activity units such as Phoenix Center, while others rated among the busiest including Bay Approach Control (San Francisco) and Cleveland ARTC Center. This experience lead to promotions into management and administrative positions.

During his final fifteen years, the author served in liaison positions with the USAF. This affiliation allowed him to fly the T-37, T-38, and F-15, and as an observer in the C-130 and C-141. Although he learned to fly in the Navy in WWII, the author never received a carrier assignment. Shortly before retirement the Navy flew him to the carrier Lexington to spend several days observing carrier qualification flights.

FAA flight deck authorization afforded the opportunity to use the jump seat in the cockpit of commercial carriers from the 1950s until 1980. Some trips were official in-flight evaluations of the FAA air traffic control system.

At retirement the author was FAA Liaison Officer to the 12th and 8th Air Forces as well as a member of the Air Traffic Division staff in Ft Worth, Texas. Following retirement he was employed for several years as Chief Flight Instructor for a major flight training school in Ft Worth.

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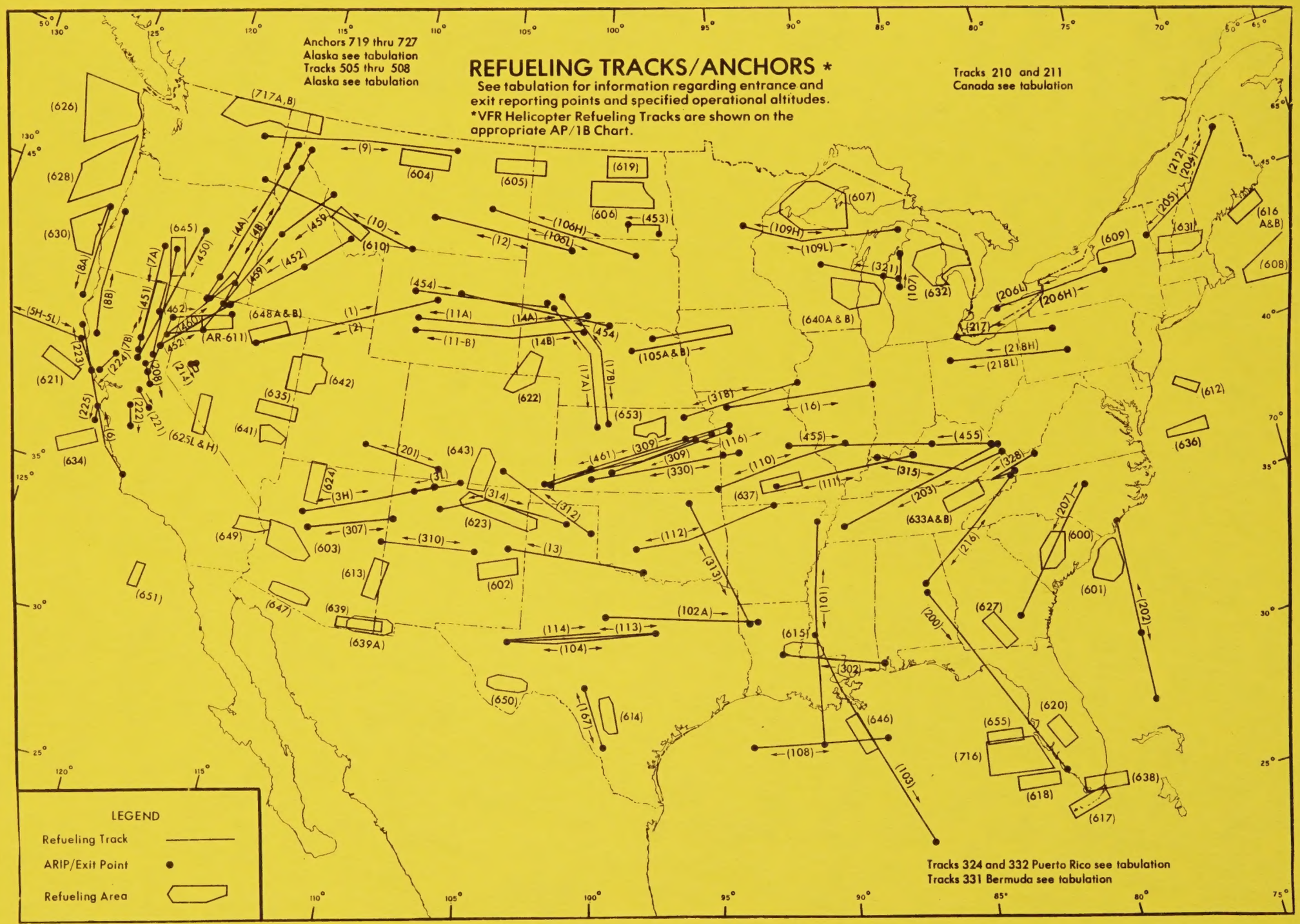
REFUELING TRACKS/ANCHORS *
See tabulation for information regarding entrance and exit reporting points and specified operational altitudes.
*VFR Helicopter Refueling Tracks are shown on the appropriate AP/1B Chart.
Anchors 719 thru 727
Alaska see tabulation
Tracks 505 thru 508
Alaska see tabulation
Tracks 210 and 211
Canada see tabulation
Tracks 324 and 332 Puerto Rico see tabulation
Tracks 331 Bermuda see tabulation
LEGEND
Refueling Track
ARIP/Exit Point
Refueling Area
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(626)
(628)
(630)
(645)
(604)
(605)
(619)
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